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NUMBER 9.

JUNE, 1914.

VOLUME VI

Edited by E. T. BROWN.



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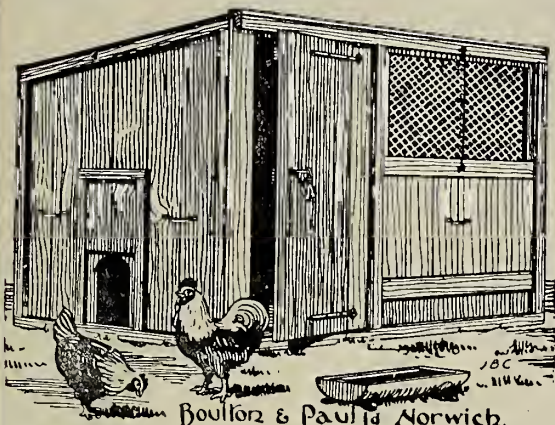
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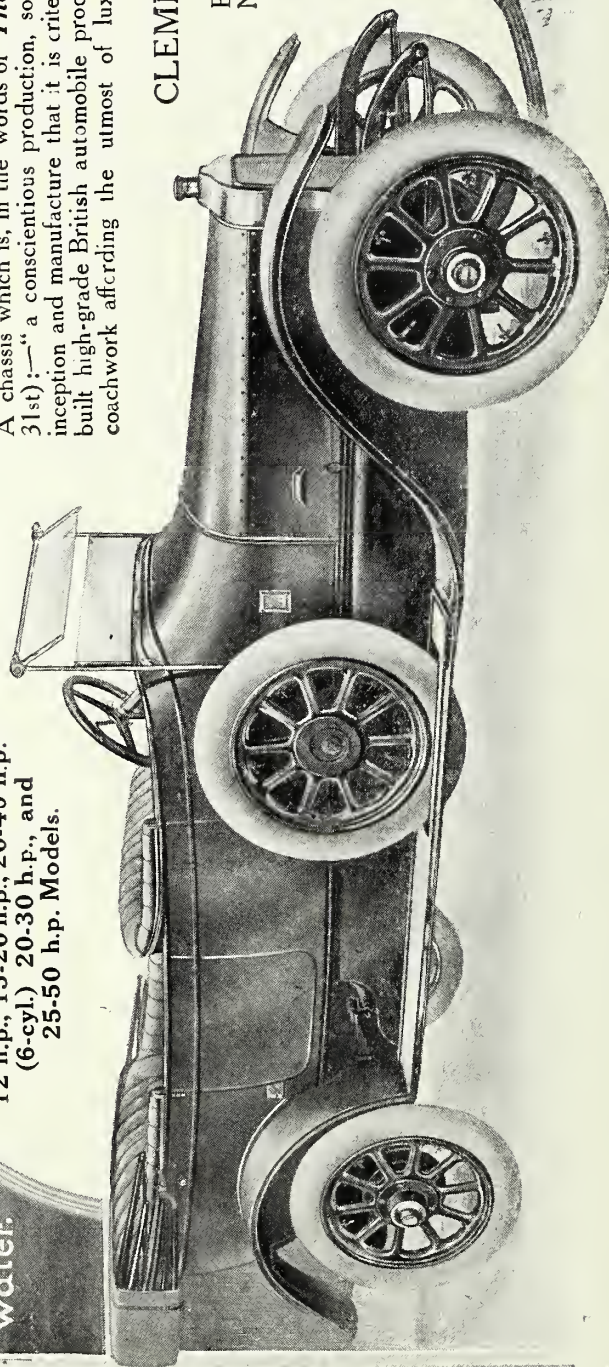
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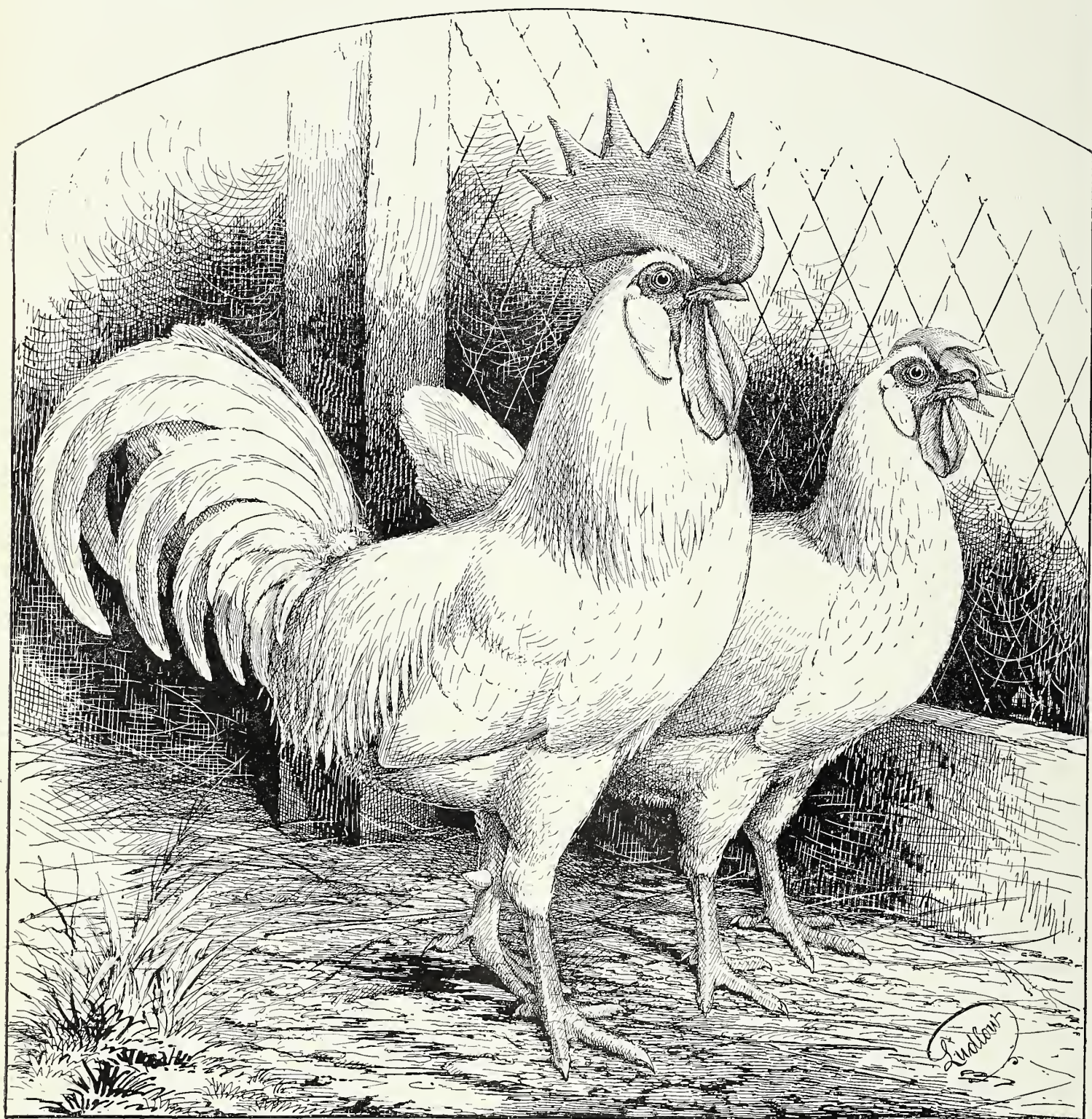
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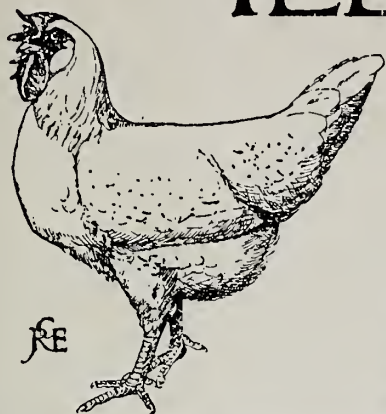
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THE ILLUSTRATED POULTRY RECORD



Vol. VI.—No. 9.

June 1, 1914.

Monthly, Price Sixpence.

DIARY OF THE MONTH.

EDITORIAL NOTICES.

TUDOR HOUSE, TUDOR STREET, WHITEFRIARS,
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The Editor will be glad to consider any MSS., photographs, or sketches submitted to him, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury he cannot hold himself responsible for MSS., photographs or sketches, and publication in the ILLUSTRATED POULTRY RECORD can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. All rights of reproduction and translation are reserved.

The Editor would like to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

The Annual subscription to the ILLUSTRATED POULTRY RECORD at home and abroad is 8s., including postage, except to Canada, in which case it is 7s. Cheques and P.O.O.'s should be made payable to the ILLUSTRATED POULTRY RECORD.

The ILLUSTRATED POULTRY RECORD is published on the first of every month. Should readers experience any difficulty in securing their copies promptly they are requested to communicate immediately with the Editor.

The latest date for receiving advertisements is the 20th of the month preceding date of issue.

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser, he is requested to communicate at once with the Editor.

About Ourselves.

Progression is a law of life, for magazines as well as communities, to both of which hindrances frequently arise that have to be overcome. The ILLUSTRATED POULTRY RECORD has recently, for reasons outside itself, passed through one of these periods. We are glad to say that the extraneous difficulties are surmounted, and we now appeal to readers in every country to which it goes, which is practically all over the civilised world, and to advertisers, for their continued support, in order that we may still further enhance its influence.

That will best be accomplished by supplementing our efforts greatly to enlarge the circle of its readers. The criticism has sometimes been passed that the ILLUSTRATED POULTRY RECORD is too educational. That, however, is praise of which we are proud. The object with which it was founded, and has consistently and persistently been maintained, is to produce a publication that shall in every issue provide practical information gleaned from the latest experience, and embody this in a form that is helpful to everyone concerned in the poultry industry, whether novice or veteran, amateur or business man, farmer or specialist breeder, operator on a large or small scale; whilst in every way avoiding extremes or merely personal questions. That we have succeeded in some measure is generally acknowledged, but not nearly to the extent we could wish. Our desire is to do more in the future.

New Features.

The contributors who have in the past done so much to give the ILLUSTRATED POULTRY RECORD its position will, we hope, continue their valuable co-operation, and we trust to add to their number from time to time. We have the satisfaction of calling special attention to the arrangement announced in another page—namely, that the special

features which gave the *Journal of the National Poultry Organisation Society* its unique place in poultry literature will from now onwards be incorporated in the RECORD, and be conducted by Mr. Edward Brown, F.L.S., who was Editor of that publication during the entire period of its history. These include general notes on utility subjects concerned with instruction and organisation, current poultry literature, recent publications, and selections and reviews, the last-named of which will give the cream of articles appearing elsewhere. This section will not interfere with Mr. Brown's general articles, which from the first number have occupied a leading place in our pages month by month.

Further, we are pleased to give the first of a series of "Bioscopic Views of Poultrydom," by the writer who hides his identity under the pseudonym of "Enos Malpas," whose "Letters From an Old Fancier" awakened such a large amount of interest and were so highly appreciated. Our semi-anonymous contributor assures us that these records are founded upon actual facts, though necessarily put in a form that does not reveal the personalities or occurrences. We feel confident that they will win for the writer, unknown to anyone save the Editor, the thanks as well as the attention of all readers.

Proposed Progeny Test.

From a report of the committee of the Utility Poultry Club we learn that proposals have been approved by that body for a progeny test to investigate the inheritance of the power of egg-production in poultry, such test to extend over a period of six years, and that application is being made for grants from the Development Fund to cover the cost. In this work it is proposed to associate Major Hurst, of Burbage, Leicestershire, whose research into the problems of breeding will be of the greatest value. His scientific work cannot fail to give the strength to such test necessary to command confidence. Details are not yet available as to how the test is to be carried out, but will doubtless become known if the Treasury provide the necessary money. The satisfactory feature of this proposal is the period over which the test has to run. Six years may appear to be a long time, but it is the shortest period that should be considered, even if it be possible to arrive at anything in the way of definite knowledge upon five years' breeding.

There are so many questions involved that we suggest, before the actual scheme of operations is definitely decided upon, the details should be made public and suggestions invited. This is not like a laying competition, which ends in a few weeks or months, when improvements can be introduced. In a progeny test such as that proposed, changes during the time should not be made. It is, there-

fore, all the more necessary that whatever scheme be adopted shall be considered carefully and fully. As an example, provision should be made for separately testing the laying of birds bred from yearling and two-year-old hens respectively, for age may be an important factor. Many other points could be cited, and may already have been considered.

Are Sharps an Artificial Preparation?

A very important case was recently heard in the King's Bench Division, referred from the Worcestershire Justices of the Peace, as to whether sharps is an artificially prepared food within the meaning of the Fertilizers and Feeding Stuffs Act, 1906. The Worcestershire County Council, with the authority of the Board of Agriculture, had taken an action against a local firm for selling sharps, which were admitted to be of a good average sample, without stating the respective percentages of oil and albuminoids as required by the Act named for feeding stuffs "artificially prepared."

The Justices by whom it was tried in the first place dismissed the summons, but stated a case, heard, as referred to above, before three judges, two of whom decided that pure sharps are not artificially prepared, in that such foodstuffs are merely separated after wheat is ground and are not mixed or manufactured in the sense indicated by the Act. The third judge took the opposite view, but as a majority rules, the decision of the justices was upheld. That is certainly in conformity with common sense. Such action ought never to have been taken in the first place. The Board of Agriculture and county authorities would be using their powers more wisely if, instead of wasting time and money in prosecutions—we almost said persecutions—of this kind, they devoted themselves to putting down adulteration of feeding stuffs, of which there are plenty of instances that could be discovered, wherein other materials are mixed with meals of various kinds.

American Buying.

Reference has previously been made to changed conditions in the United States of America, and that, as a result of enormous increase of consumption in that country and the abrogation of import duties, purchases are being made in Europe which, if there should be a large increase, may completely alter the whole aspect of affairs and be of serious moment to British consumers. What is of great importance is that home markets are being invaded. Not only have considerable purchases been made of eggs on the Continent of Europe, and of poultry in England, but Irish supplies are also being deviated. It is stated that one of the great American firms is contemplating the opening of a buying branch in Ireland.

Panama Exhibition.

Up to the time of writing no announcement has been made as to recommendations arrived at by the Sub-Committee of the Poultry Club with respect to representation of British poultry breeders at the San Francisco Exhibition next year. The question is one of considerable difficulty. That it would be desirable for a fine display to be made is unquestionable. The Pacific slope is a far cry, and to send birds over would involve a very heavy expense, while the return is regarded by many as very doubtful indeed.

Doubtless any exhibits would be readily sold at good prices, upon which, however, is no surety. In so far as individual breeders are concerned, the only possible way would be by combination, each contributing a quota of the expense of sending a man in charge, who would be responsible for staging on arrival and seeing that the display was satisfactory. We had hoped that the Exhibitions Commission formed some time ago would have undertaken and borne the cost of such arrangements. That stage, however, has not yet been reached, which is regrettable.

The Hotel Chicken Contract.

Our contemporary *Eggs* records that the project for supplying hotels with various grades of table poultry is going forward, but details have not been definitely published, so that it is impossible to do much more than announce the fact. It is proposed to form a Co-operative Association, registered under the Industrial and Provident Societies Act, with a capital of £250 or £500, which appears altogether inadequate. Suggestions are made that local centres be established where not less than fifty birds will be supplied per week. As far as possible all these lean birds will be fattened and finished off, and then sent to a selling agency in London.

One satisfactory feature is that the promoters are keeping to the fore helping smaller producers, which is the great difficulty at the present time. Although, as announced, the scheme appears as yet very crude, we shall watch its development with interest, wishing it every success, although there are rocks ahead which may or may not have been anticipated. By the way, mention is made of *Renies* fowls. Is not this a misprint for *Rennes*?

Thin Shells.

Breakages of Irish eggs in transit has often been mentioned, and has attained the dignity of a question in the House of Commons. It cannot be imagined, however, that cases are handled more roughly when crossing the Irish Sea than those which come from the European Continent. The cause, therefore, must be looked for in other directions—namely, bad packing or weakness in the shells, both of which are probably responsible. So

far as the latter are concerned, it is often forgotten that exhaustion of certain elements in the soil must weaken the shells, and that with increase of production the natural supply must be supplemented.

Sport versus Poultry.

How far the decision arrived at in the Perth Sheriff Court, in which a poultry-keeper obtained an interdict against the landowner and shooting tenant, would be supported on appeal, cannot be stated. The case, as recorded in the daily Press, is as follows:

The poultryman's lease, which was warranted by the proprietor, specially stated that the park was let to him for the purpose of a poultry-farm. It contained no reservation in favour of the proprietor or his shooting tenants. The claimant averred that, without notice to him, the shooting tenant had on a date last autumn entered his poultry farm and had stationed a number of guns in close proximity to his poultry runs. He alleged that serious damage was thereby done to his stock of pure-bred poultry, the birds being very much scared or frightened.

This contention was accepted by the Judge, and, in accordance with common sense and justice, the claimant won his case.

Egg Theories.

In an egg case tried at Newcastle-on-Tyne a witness from Denmark gave expression to the following views:

There was no difference between the eggs of the Russian and Danish hens. Carriage by sea or by railway made no difference to the egg; it was the length of time that made the difference. The tumbling about in the North Sea made no difference. An egg could be kept fresh for a month. The whole question depended upon the white of the egg. When the egg got old the white got thin; the yolk sank through the white and fastened itself to the shell. If examined by candle light the egg appeared cloudy, and that meant the white was weak. But if the yolk were kept away from the shell, the egg was good and sound, but a "weak egg" was one in which the yolk was getting near the shell, as indicated by the cloudy appearance. When there was a black spot, which indicated that the yolk was against the shell, the egg was absolutely bad.

Retailers can tell a different story. "Tumbling about" is bad for the egg, whilst sea dampness causes deterioration.

Where Shippers Fail.

In the annual report of the Department of Agriculture for Ireland the following statements occur:

On the whole, it may be said that the tendency to grade and pack eggs properly continues; but, as heretofore, the reputation of Irish eggs on the markets of Great Britain is seriously impaired by the practice of a certain class of shipper to sell, as fresh, eggs which have been held over. There appears to be a distinct movement on the part of the better-class shippers in favour of testing eggs for freshness by means of the light test.

Possibly the last sentence explains why recently Irish eggs have in some cases been sold at 3d. to 7d. per 120 above English in English markets.

POULTRY-FARMING.

HOW THE MAIN ISSUE IS BEING OBSCURED.

By A. T. JOHNSON.



POULTRY-FARMING has been described as the last ditch of fallen man, and I am inclined to agree with the definition. At any rate, I know—we all know—that whenever you find an individual setting up a poultry-farm that individual has either tried other things and failed, or he is the “fool of the family” on the look-out for the quickest way to grief.

Perhaps it had been wiser had I begun by saying at once that there is no such thing as poultry-farming. There have been many attempts to make a living by producing eggs and chickens for market, but the results have all proved inadequate. The nearest we have ever got to an example of a poultry-farm that has shown a return good enough to encourage one to think that, under different conditions, there might be much in chicken-rearing, is that afforded by Mr. Paynter's demonstration at Crewe. That, however, was an exceptional affair carried out by an exceptional man. The balance-sheet issued by Mr. Paynter was probably one of the most trustworthy documents of its kind we have ever seen. But it was not convincing, and whether the Haslingden demonstrations will ever be of any material use to the small-holders of Cheshire or anywhere else is very doubtful. I have been called a pessimist, among other things, in regard to this case already, and, being one, shall not mind if I am called so again.

I am not going to go over stale ground here by discussing the well-worn pros and cons of this subject. Poultry-farming, as it figured in the dreams of enthusiasts ten years ago, is virtually dead. At any rate, we hope it is. While it was with us it scuttled a good many people, but it kept them out of mischief for a time, and most probably they would, but for it, have suffered a more violent end. But the trouble is this. “The evil that men do lives after them,” and the disasters which fell upon the adventurers referred to undoubtedly did a great deal of harm to poultry-keeping in general. The latter feels the effect of those misguided efforts to this day.

Since this poultry-farming was discovered to be a hoax we have, as might be supposed, gone in other directions, groping for some way out. But, oddly enough, our attempts have ever shown an inclination to revert to the old ruinous methods, or adaptations of them, rather than to fresh soil and a new start. That is to say, we have too persistently stuck to the small run or more or less intensive principle, which has never yet paid any-

body in this country. Almost every obstacle that stood in the way of the poultry-farmer of a decade or more ago we have found ourselves up against in the simple or elaborated intensivist systems which we now hear so much about. And the few advantages claimed for these systems have not yet been proved. Again, in the laying competitions we have had rehearsed in grim reality the old story of failure that might well have been left comfortably buried. For have not the pen arrangements and general plan at most of these competitions been facsimiles of those which brought such dire retribution upon their speculative owners in the days of the poultry mania? And have not the financial results of most of these demonstrations been echoes of those which befell the misguided enthusiasts referred to? No one can deny that these things are so. The specialist may argue and others may plead the cause of these costly failures; but they, the latter, do nothing—nothing towards establishing the possibility of making any money out of poultry-keeping. Indeed, they are among the most discouraging factors which ever confronted the poultry industry.

Both the intensive system and the laying competitions may be “good for trade.” The poultry boom, calamitous as it was, was equally stimulating to certain branches of poultry-keeping and appliance making. But that is not enough. What we want to do is to break away from these narrowing influences and press the cause of utility poultry-keeping in the only sphere where it is really profitable—i.e., on the holdings of farmers, fruit-growers, and other agriculturists. So much attention is now being given to “intensivism” and to laying tests that the broader issues are being completely obscured. It is all very well to encourage people who have no more space than a window-sill to experiment with intensive poultry-keeping. Competitions are useful, inasmuch as they stimulate breeding for laying and incidentally admonish us for crediting the prolificacy of the hen with an elasticity she has not yet developed and probably never will, since she rather resents it. But both of these popular innovations have the mischievous effect of distracting public attention from the main question—the poultry industry as a national asset.

The practical work done by the late N.P.O.S in getting right at the farmers and cottagers was a move in the right direction. But I am convinced that all the random talk about “intensivism,” “fowls in flats,” the Cheshire demonstrations, and the “phenomenal results” of laying competi-

tions which has appeared so frequently in the popular daily Press has had, and is still having, a counter-effect upon the efforts made by that Society. Even the Board of Agriculture has become obsessed with the cockle-shell principle. Practically ignoring the claims of poultry-keeping as a part of farm work, it has for some time been showing an increasing tendency to assist those methods which tend to strangle and congest,

Cook saw them from his dog-cart as he drove round rural England. Some of them may have changed colour; they may have increased in numbers in a few districts, but are they so much more prolific, more profitable than they were? Have all these years of breeding, laying competitions, demonstrations, County Council education, and the rest produced a commensurate difference in the average flock, or a relatively noticeable increase



DUCK-REARING ON AN EXTENSIVE SCALE.

[Copyright

The Duck Farm upon which this photograph was taken is one of the largest in America. In one season about 80,000 birds were reared and marketed. The breeding stock are all either pure Pekin or else Pekin-Aylesbury.

rather than to relax or widen, and which are never likely to be of any use to the agriculturist and genuine poultry-farmer.

Though there is only about one hen to the acre (or is it to the square mile?—I am no statistician) in this broad green land of ours; though we know that poultry-keeping as an adjunct to agriculture is a paying business and that poultry-farming as an exclusive pursuit is a losing game (even Mr. Paynter appears to insist upon the co-operation of some form of land culture as an essential for the full realisation of his hopes), we persist in giving the great bulk of our money and our attention to work of an intensive nature. Thus the farmer's fowls are to-day pretty much as they were about thirty years ago, when the late William

in the home egg yield? I am afraid the net result would make a very poor show were we able to get at it, and the lion's share of the blame must be laid on the shoulders of those absorbing but outside distractions to which we are to-day affording practically all our available support.

Influence of Prolonged Laying.

In a report of the West Virginia Agricultural Experiment Station, Professor H. Attwood records that incompleting experiments indicate that chicks are less vigorous when hatched from eggs laid by hens which have been laying heavily for a long time. A further statement made is that a decided lack of phosphorus in the rations resulted in a material decrease in the number of eggs laid.

BIOSCOPICAL VIEWS OF POULTRYDOM.

BY ENOS MALPAS.

I.—JOE THORBURN'S DILEMMA.

"I CANNOT do it, Kate. It's of no use. The man trusts me, and I should feel like a thief," said Joe Thorburn with attempted firmness, for he was combatting his own desires as well as those of his wife. The couple were sitting beside the humble cottage fireplace in a Yorkshire dale one evening in 188—, after having carefully closed the door, for the question at issue was private to themselves. When Joe had returned home from the mill there was a letter awaiting him which was the cause of the animated, almost angry, discussion between man and wife.

what I am selling. That's the difference," urged Joe.

"I cannot see it. Here is a gentleman rolling in money which we need badly, who sees a cock that he fancies at a show, and writes offering fifty pounds for him," replied Kate. "Think what it would mean, Joe. We could get clear with the world and have something over. Oh! it would be heavenly."

"Yes, yes; I know it would. But the money would do us no good. It would be ill gotten."



AN IDEAL REARING GROUND.

[Copyright.]

"Think, Joe, what fifty pounds would do for us, and only for one bird. Why, he's not worth five pounds," declared Kate, who knew what she was talking about as well as her husband, for she was as keen a fancier as he.

"That's the trouble, lass," was his response. "I wouldn't give ten shillings for the cock."

"But," she continued, "you did not ask him fifty pounds, nor even say the bird was for sale. He writes and makes you a bid, is willing to take it as it is, and——"

"He doesn't know what he is buying; I know

To this his wife angrily replied, "You're a fool, a born fool."

"That may be true, Kate, but I want to be honest, and so do you. So much money is blinding you," said Joe. "It's been a hard struggle, I know. There are many things you have gone without because we could not help it, and so have I. For me it did not matter so much, but I have often and sorely grieved for you, lass. One thing is true. We have done nothing wrong. Let us stick to that, whatever comes."

For a moment she was silent. The memories

of the last few years were too vivid. Then she said, "Joe, if we had this fifty pounds, which may be ours to-morrow, we could get out of debt. That worries me day and night. Then you could take the Mill Cottage and have that nice meadow for your birds, instead of being cramped here. I could have a few things for the house, and we could put up a stone on Nellie's grave. Oh, Joe, have I not been a good wife to you?"

"You have, never was a better. God knows I am grateful to you," he answered with fervour.

"I have never asked you to do anything wrong, and always stood by you?" she queried.

"Yes, that's true."

"Then why not do what I ask? Cannot you trust me?" she whispered.

"Oh, Kate, Kate, do not tempt me. Fifty pounds would be our salvation, honestly got, but might be a curse if I lost my self-respect."

With that he seized his cap and passed quickly out of the house before Kate was able to stop him. She watched him mount the hillside towards the moor, feeling sure that when he returned her point would be gained, for he nearly always agreed with what she said. In fact, to her neighbours she had sometimes boasted that "Joe was the best man that ever lived, for he always lets me have my own way."

* * * * *

It was true that they had had a hard time the last two years. Joe had been a poultry breeder ever since his boyhood, as his father was before him, and as were many of his fellow-workers. He was born and lived all his life among some of the keenest fanciers in the kingdom. The spirit was ingrained. That was equally true of Kate, whose people were like-minded. In fact, it was community of thought and of interest between the two families that had led to their marriage. Life without hens and shows seemed a poor business. To win a prize at York, or Kendal, or Bingley was worth striving for an entire year. Both were chapel people—Joe a class leader and Kate had been a member of the choir. They were typical Yorkshire folk, high principled by nature.

When they were married five years before everything went well. Their little home was the essence of comfort. Kate, like most of the Yorkshire women, although she, too, had been a mill-worker, was a born housewife, proud of her home and her man. Joe was in good work. His leisure was spent among the fowls, kept on a quarter-acre plot not far from the cottage. In the work his wife fully shared. She looked after them during the day, and Joe often said that she was the best chicken rearer in the world. Success attended their efforts. Many prizes were won, and the resultant sales, though not large, made an appreciable addition to their income.

He was steadily gaining a reputation for his stock, which meant much, especially as he knew how to prepare birds for show so that they were turned out in perfect condition. The couple were gathering a substantial nest-egg and looked forward to the time when much more might be attempted, often laying plans together for the future.

Then came a period of disaster. Trade was bad. The mills were for months working short time. That might be good for the hens, but was bad for the pocket. Moreover, trade depression meant lessened demand for birds. It was just then little Nellie was born. Kate's life in the mills from girlhood was not a good preparation for motherhood. She was ill for a considerable time, and so slow in recovering that help had to be obtained. Moreover, from birth the baby was delicate. Everything was done possible to save her and no expense was spared. Even though savings were sacrificed and some of the best birds sold to help, it was all in vain. After nearly two years of struggle the little life was ended and the hearts of the parents left desolate. In addition to this sorrow, for the first time they were unable to meet their bills, and £20 debts are not easily paid out of a weekly wage. Of the fowls only one breeding-pen and a few youngsters were left. Another year must elapse ere much help could be obtained from that source.

Hence the offer of £50 for a single bird meant immediate relief and fresh hope, even though the void in the home was as great as ever. Joe and Kate had too much self-respect to borrow money from those who were not much better off than themselves. Fifty pounds would have paid all they owed and do everything that Kate had suggested.

One reason why so many artisans seek to make money by poultry is a desire for independence and of having something else to depend upon when work is slack. The terror of dependence upon the whims or justice of employer or onlooker is ever before them. Any week they may be thrown out. That explains much as to what takes place under the factory system.

* * * * *

Kate had gone to bed when Joe returned home. What had been the mental conflict on the moor no one knew but himself. Nothing was said between them that night.

The following day was Saturday, and, as usual, the mill closed early. The dinner was a silent one. Kate thought it wisest to leave what she had said the night before to exert its influence. Joe had no desire to talk. So far as he was concerned the battle was ended, though it involved much that he dreaded.

The meal was just finishing when the door opened. As customary in these cottage dwellings, it gave access direct to the living room. Both were startled to see Mr. C—— standing there.

Each knew the time of crisis had arrived. He it was who had made the bid for the cockerel.

"Good afternoon, Mrs. Thorburn. How are you? Better, I hope," was his cheery greeting. "I was nearby, and thought I would come and see about the bird, as I suppose, Joe, you are going to let me have it."

For a moment there was silence. Then Joe replied, "I don't think so, sir. We did not intend to sell him."

"Oh, nonsense!" said Mr. C—. "I want him badly, and am sure there is no one else who will give as much. Surely fifty pounds is a good price, when you have the stock that bred him."

Much more was said that need not be recorded. Finally the would-be purchaser suggested that they should have a further look at the bird, as he had only seen it in the show-pen. This was done whilst Kate tidied up. She thought it wiser to leave them alone. The result was that Mr. C— was keener than ever, and had actually offered another £10. The temptation was almost more than Joe could withstand. Several times he almost yielded. He did not, however, utter the fatal word of acceptance. What £60 would do for them no one realised better than himself, and the prospect fascinated him.

* * * * *

When they returned Kate had some tea ready, with cheese cakes and other delicacies of which Yorkshire wives alone have the secret.

"Now, Joe," said Mr. C—, after he had enjoyed the good things, for although a wealthy manufacturer he loved these humble surroundings, "let us get to business, for I must be going. I am sure that Mrs. Thorburn is on my side. She, at any rate, knows the value of a bird in the hand."

Kate looked approval, though she said nothing.

"Before I answer, sir," replied Joe, "I want to tell you something. You remember that Black Hamburg hen with which I beat you for the Cup at Kendal nearly two years ago?"

"Of course I do. She was a beauty," was the answer. "I would have given a lot for her, but you would not part."

"She is the mother of this cockerel," continued Joe.

"I am not surprised. He is a worthy son, though different in many respects."

"Well, one or two times last year I found this hen had flown out and was among Tom Newby's Black Minorcas. She was mated up soon after, and I set a clutch of her eggs. As soon as the chickens came out it was evident the cross had its influence. Seven out of the nine were clearly half Minorca, but two seemed to be pure Hamburgs. The seven were killed, and only the two kept. One of these showed signs of the same kind

when half-grown, and that was also killed. The one left appeared to be perfect, and I must say that to my eyes in every point the finest Black Hamburg I had ever bred. It seemed as if in his case the Minorca cross had been lost and the new mating was alone responsible. Such was my firm belief.

"The bird grew well," Joe proceeded, "thanks to Kate, and matured early. I have shown him three times, and in each case he has won—"

"And rightly, too," interrupted Mr. C—.

"So I thought at first. I have had several offers for him. Mr. Burton was willing to give thirty pounds weeks ago, although I did not tell Kate. When he was placed beside the others in the shows I, knowing what had occurred, could see the traces of Minorca influence, and at the last show saw clearly that he was not pure but a cross, and that, in some way I cannot understand, the Minorca has hidden itself behind the Hamburg. It is there, however. The bird is not clean bred. I have made up my mind never to show him again, but, oh! sir, your offer has tempted me sorely, for we have had a hard time of late, and the money would have been a godsend to us. I felt I could not take your money under false pretences."

"Give me your hand, Joe," exclaimed Mr. C—. "I am glad to call you my friend. You are a true fancier, the sort that would make exhibiting stock a very different thing to what it is. Mrs. Thorburn," he said, turning to Kate, "your husband is a gentleman, and, what is more, an honest man. You should be proud of him."

Then, speaking to Joe again, he said, "You have refused my offer, and I honour you for it. What I am going to do is to give you ten pounds for the bird merely to keep and see what the result is when it moults, as I would not show him. If it turns out pure you shall have the other fifty pounds, for I would then breed from it. And you have three other youngsters in the yard for which I will give you twenty pounds. I know you too well to offer to help you out of your difficulties more than that, but perhaps this thirty pounds will assist, and you may always rely on me as a sincere friend."

* * * * *

The £30 did wonders. True, Joe and Kate had to wait some time before aspirations were realised. That they were content to do. But it all came right. The home was filled with children's voices, sweetest music on earth, the poultry-yard grew, prosperity followed in their track. There had been no loss of integrity.

I saw Joe Thorburn at the last Palace Show. He is getting well on in mid-life. There was a dignity about him which recalled this story to my mind, due to the conquest won in what was probably the crisis of his life.

DISEASE IN RELATION TO THE POULTRY INDUSTRY.

By EDWARD BROWN, F.L.S.



IN no department of human knowledge has greater progress been made during the last fifty years than in medical and veterinary science, consequent upon which not only is there a more complete and scientific definition of disease, but a fuller realisation of the causes, together with appreciation of bacterial and other inciting influences, and, to a lesser extent, ability to combat disease in one way or another, though in that direction we appear to be only at the beginning. On the other hand, it would appear to be true that, as a result of greater aggregation of human beings and animals, massed together in communities, and of more intensive conditions, the tendencies to development of disease are greater than ever.

Such is certainly the case with poultry, following upon a vast increase of numbers and other influences named further on. That in former times there were losses by disease among domestic fowls cannot be questioned. Inquiries, however, reveal that these were comparatively few and isolated. It was not until the numbers of birds kept upon given places were largely augmented, and methods adopted which tended to diminution of natural vigour in fowls, and, therefore, lessened ability to repel attacks of bacterial and parasitic enemies, and to conditions that are favourable to rapid development of these creatures and to their virility, that the question became of serious importance, combined with which is the economic value of poultry, now very great and constantly advancing, not so much individually as collectively. One fact must ever be regarded—namely, that power to prevent disease may be the determining factor in respect to further development of utility poultry-breeding.

SCIENTIFIC RESEARCH.

During the early days of the poultry industry empirical methods in the treatment of poultry diseases were unavoidable by reason of the fact that scientists had not applied themselves to the study of this branch of live stock. Poultrymen had to do the best they could and to accept the consequences. As a result it was often thought wisest and cheapest in the long run to kill any fowl seen to be sick. With the advent of the exhibition system, and the increasing value of individual birds, greater attention was given to the question, equally in the direction of cure and prevention. A breeder felt that he was warranted in expending money and time in endeavouring to save a fowl worth, perhaps, several pounds, which was not the case when its cost was measured by pence. To that fact may be attributed some, at least, of

the increased attention paid to poultry diseases. With the advent of poultry-breeding on more extensive lines, where whole flocks were liable to be attacked, probably involving loss over wide areas, the importance of the question was more fully understood. It became not merely a matter of individuals, but of flocks and communities, compelling attention on the part of Government departments. The first most notable step in this direction was when the French Ministry of Agriculture instructed the late Professor Louis Pasteur to undertake an investigation into an outbreak of what is known as chicken cholera, which was then devastating the farms of that country.

This subject has, therefore, to be considered in two directions. First, diseases which are individual—that is, where single birds or limited groups are affected, wherein the loss is apparently small, although probably more wide reaching than is generally supposed, owing to inherent weakness transmitted to the progeny, thus making for degeneracy in the stock; and, second, those forms of disease that become epidemic, which by dissemination cause great and immediate loss, not merely on the place of origin but by infection of considerable areas. I have seen several such epidemics or their effects in Britain, Ireland, America, Belgium, and Italy, the results of which were disastrous in the extreme, involving an enormous amount of loss.

PREVENTION.

When disease breaks out, except in minor complaints, cure is frequently impossible. In no case can it be profitable. The small comparative value of each unit means that, apart from danger of infecting others, such value may speedily be expended by a course of treatment. What has to be sought for is the cause, in order that by its removal further developments may be prevented. Frequently that cannot be discovered until a vast number of deaths have taken place. In fact, not until the infection is more general are steps taken to investigate such outbreaks. Such is always the case even with human beings. Probably there is no instance in which adequate preventive measures have been adopted until the necessary compulsion was applied owing to outbreaks of disease involving serious mortality. Hence it was not until the poultry industry became of sufficient importance to justify the expenditure of public funds in the work of investigation, and to command the labour of scientists in this direction, that serious efforts were put forth. For example, a recent epidemic involved a direct loss of at least £50,000 within one or two provinces of Belgium

in a single season, ruining many producers and threatening with destruction an important rural industry.

The time has fully arrived, therefore, when the question must be dealt with on broader lines, to which end the co-operation of scientists, whose training enables them to pathologically investigate diseases of poultry, in order that the causes may be removed, is absolutely necessary. Fortunately, in several countries the services of such men and women are now available, though not to the extent which is demanded by the importance of this question. That, however, is not enough. Whilst research into the nature of disease and its development, discovery of bacteria and parasites which are the active and immediate cause, and how these may be combatted, are of the greatest

whose interest in a disease is limited by their desire to prevent it.

CONTRIBUTORY CAUSES.

For the reason that this subject cannot any longer be treated superficially, in that it is too serious and requires exhaustive consideration, we can only indicate as far as our knowledge goes what are the main causes of disease in poultry. We shall ultimately arrive at the stage when, as is already the case in some countries, public research stations will be in operation, at which investigations can be made, whether for individuals or communities, and advice given, the staff of which shall consist of men who are poultry pathologists in the true sense, in that they have specialised upon this branch of live stock. Up to the present time veterinary surgeons have paid very little



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A TRIO OF WELL-KNOWN AMERICAN PRIZE-WINNING WHITE LEGHORNS.

value and importance, they deal with but part of the subject. What must be diligently sought for are the contributory conditions, whether involved in breeding, methods of treatment, environment, feeding, &c., in order that prevention may be effective, which should ever be the main object of all investigation. Practice and science must act in unison. The knowledge of advanced practitioners who have studied hygiene and sanitation, and that of investigators whose interest is in purely scientific research, are equally essential. Without such combination we shall not attain effective methods of prevention. It is requisite to clearly state the position, because some reports which have been published as to outbreaks of disease are incomplete, in that these stop at the point where they would be understood by poultry-keepers,

attention to poultry diseases, because it did not pay them to do so. The owner of a horse or a cow can afford to pay an adequate fee for advice if it is sick, which fee would be three or four times the value of a hen. That has been a great difficulty hitherto. With increase of numbers it is a question of flocks rather than of individuals.

HEREDITARY INFLUENCES.

It may probably be true that many diseases from which fowls suffer are not directly transmitted to their progeny. As examples, chickens hatched from eggs laid by tuberculous hens in one or other of the known forms, or from liver disease, do not immediately show signs that the parental disease is inherited, and sometimes may escape altogether if the conditions and methods

of feeding are favourable. At the same time, it is within general knowledge that the progeny are prone to suffer from the same disease at a later stage of life. The consensus of medical opinion is that whilst the diseases named are not directly inherited, the tendency is present, in that, either by general constitutional or organic weakness, there is not the full power of resistance to attacks of bacteria. By this is meant that the organ affected in the parents has a lessened degree of vigour in the descendants. On the other hand, we have evidence that bacteria or parasites may be passed by the hen into the egg and thence to the chicken hatched from it, which is thus born to die.

In the epidemic already referred to, which spread largely over parts of Belgium in 1912 and 1913, Professor Frateur, of Louvain University, discovered the same parasite in eggs laid by infected hens. As a consequence we have a further indication of the importance of using sound stock for breeding purposes. By this I do not mean that if an otherwise valuable bird has a bad cold, or shows signs of indigestion, it should be discarded, as these are local and temporary affections which will cure themselves if left alone and leave no permanent influence. Any fowl or other poultry that reveals indications of organic disease, or has suffered from a serious affection, should not be used as a breeder. Acute diseases which are more rapid in their effects are less dangerous, as these usually end in death, or leave the birds so debilitated as to be useless. What have specially to be guarded against are the insidious affections that show few signs and are much slower in their development. Even with these, however, evidences are generally present that indicate debilitation. The line of safety is to avoid all risks. Personally I believe that to seek for stock which are immune to disease is a vain quest. What we have to do is to prevent disease by favourable conditions and adoption of right methods.

CONDITIONAL CAUSES OF DISEASE.

Probably the greater number of affections and diseases, chronic and active, are due to bad environment, even though some of these may apparently arise from other influences. It is impossible to limit the effect of non-hygienic and insanitary conditions, which may develop in a dozen different ways.

Want of proper and efficient ventilation deprives the bird for several hours daily of sufficient oxygen, and, by compelling it to breathe air charged with carbonic acid gas, impoverishes the blood, overtaxes the lungs, and weakens the whole system.

Want of light in the poultry-house affords the conditions most favourable to increase of bacteria and parasites.

Want of cleanliness has the same effect, and also may affect the blood in other ways.

Dampness reduces the vitality by more rapid elimination of body heat.

Probably that which has been responsible for the greatest amount of disease among poultry is tainted soil.

That unsuitable food has had a great influence in this direction is unquestionable. As to that subject, our knowledge is very limited indeed, and the methods adopted are often bad in the extreme.

One of the penalties which frequently follows domestication is abrogation of the need for seeking food, more especially where birds are kept within enclosures and all food has to be supplied. Under these conditions the danger of reducing the physical powers by absolute disuse is a very positive one. Weakening of the system results, which reacts upon frame, muscles, and organs, and power of resisting malign influences. Functional activity is thus checked. If such birds are used for breeding, degeneracy in the progeny follows, even where disease does not immediately supervene.

The Late Mr. Barry Owen.

Recent reports as to the state of health of Mr. Barry Owen, founder and until recently proprietor of the great poultry-farms at Martha's Vineyard, U.S.A., prepared all for the announcement of his death, which took place on April 19. A resident for many years in England, Mr. Owen made himself prominent as the mainspring of the Gramophone Company. His advertisements were remarkable, not merely for their number and size, but their quality. "His Master's Voice" compelled attention and contributed enormously to the success achieved.

Retiring with a fortune to his native land, Mr. Owen took up poultry-breeding on a large scale a few years ago, and adopted business methods in pushing the sale of his stock. He promised to become the Napoleon of the poultry industry. How far the business was financially successful we do not know. A breakdown in health led to his transferring the enterprise to Mr. Maurice F. Delano, his chief assistant, and he has now passed away, at the early age of fifty-four, deeply regretted by all who knew him.

What Did the Thrush Say?

The story of a thrush that missed the train, on a carriage of which she had built a nest, because there had been an alteration in the time-table comes from Limavady.

The train left Derry ten minutes before its usual time, and the bird arrived to find it gone.

Next day, however, it was on its nest as usual, and now that carriage is not to be used until the eggs are hatched.

MODERN SCIENCE AND POULTRY PROBLEMS.

III.—ACQUIRED CHARACTERS.

By OSCAR SMART.



FROM the two preceding chapters it will be clear that there are two distinct kinds of variation: one which is known as "germinal variation," and is effected in the germ-cells, and another which is spoken of as "acquired," owing to it being effected by the influence of the environment on the organism. In many cases, as already shown, this influence is very great, both its nature and its importance being fully recognised; but it is still open to some controversy as to whether or no the modifications brought about in this manner can or cannot be inherited by the progeny. In its proper place we shall consider the evidence both for and against the inheritance of acquired characters; but in the present instance we have to deal: (1) With the adaptable nature of the organism; and (2) with the scope of adaptation as seen in the domestic fowl. By a clear understanding of these two points we shall place ourselves in a better position to appreciate the somewhat technical evidence that must follow.

METHOD OF ADAPTATION.

Fertilisation, as we know, is effected by the fusion of a male and female cell, which gives rise to a single cell, spoken of as the "fertilised ovum." In birds this ovum remains inert and passive until such time as the proper measure of heat shall be applied, when it immediately begins to develop. The ovum divides into two cells; these two cells divide into four; each resulting set of cells repeats this division until such time as the organism has reached completion, which period is not at the time of hatching, but when the body is fully mature and all growth has ceased—in fowls usually at about two years, but in some cases much later. This process of division, which is concerned purely with the building up of tissue, is known as "somatic" division, and must be distinguished from gametic division, which takes place just previous to fertilisation.

It will, therefore, be seen that every organ, every tissue, every particle of the organic body, is composed of cells. To these cells many names have been given—they are the pangenes of Darwin, the body-plasms of Weismann, the somatic cells of other writers. We shall, in future, refer to them as the body-plasms.

Body-plasms are not by any means constant in number. They are affected by many conditions of life, and are subjected to either increase or decrease under various environmental and pathological changes. When the number of body-plasms is altered in this way, a corresponding modification is effected in that part of the organism

concerned; these modifications are spoken of as adaptive or acquired characters. It must not be thought that an acquired modification is necessarily something *gained*, for it may, with equal truth, represent something *lost*. For instance, the short tail of a docked horse is just as surely an acquired condition as is the extra muscle development of a man engaged in strenuous manual labour. An acquired character means the modification of a part brought about by forces other than heredity. It means nothing more, nothing less.

ACQUIRED MODIFICATIONS IN FOWLS.

The factors causing acquired modifications in fowls are so numerous that a few of them must be treated here. We will cite a few well-known examples in order to give the reader some idea of the scope of the subject treated in this and our next article.

ACQUIRED SIZE.—The flesh and bones are composed chiefly of lime, and although their ultimate development must, to a very large extent, depend on hereditary factors, still the limitations imposed in this manner are not nearly so great as one might suppose.

If the progeny from a pen of pure-bred birds were divided into two flocks, and one of these, in addition to its ordinary food, were given milk, bean leaves, carrot-tops, and grass (all of which are exceptionally rich in organised lime-salts, or bone-forming elements), the flock thus fed would make very much larger birds than would their brothers and sisters from which the "lime-salt feeding" was withheld. The *additional size* obtained in this manner would, of course, be acquired—that is to say, it would not be due to ordinary germinal variation, but to modification of the body-plasms brought about by a specific environmental factor.

ACQUIRED SMALLNESS.—The absence of sufficient lime-salts in the food would, of course, prevent proper development, so that the chickens could not attain the size which, according to inherent size factors, we should have every right to expect. This is a point not without its interest for bantam breeders.

There is, however, another environmental force which, brought into operation at the time of rearing, will greatly restrict growth. This is altitude. Living forms on high mountain ranges are proverbially small, and De Vries, of Holland, has proved beyond all possibility of doubt that this smallness is essentially of an acquired nature, for the progeny of pigmy mountain species, when reared in the valleys, invariably show increased development. Conversely, the progeny of normal lowland species, when taken and reared on the

mountains, are invariably checked in growth, so that when fully mature they are nothing but pigmy forms in every way resembling the true mountain species. The interchangeability of the two types, under these conditions, appears to be conclusive evidence that size (at rearing time) may be determined by altitude alone—a fact which, although widely acknowledged, does not appear to me to have any great practical value.

ACQUIRED TYPE.—There are, it must be admitted, very few cases in which the type of the fowl can be modified by influences other than hereditary, and even in those few instances where “training” is considered essential, the changes thus effected are of such a nature as only to be discernible to the eye of the fancier, whose duty it is to distinguish fluctuating as well as specific differences.

In those varieties where “reach”—to use a fancier’s technique—is considered necessary, the bird is placed daily in a small pen, the front of which, to within a few inches of the top, is darkened by a sheet of cardboard, or other suitable material. Through the open space left at the top morsels of meat are offered the bird which it cannot obtain without the stretching of neck and legs. This exercise, practised daily, brings certain muscles into play, which, in time, modifies the type of the bird, causing that elongation of neck and legs, together with that upright carriage, so essential in exhibition specimens of certain breeds.

ACQUIRED COMB DEVELOPMENT.—In Leghorns, Minorcas, and a few other kindred breeds, a high, upright comb in the males and a long, drooping comb in the females is considered a desirable characteristic. The abnormal development of comb in such breeds is, of course, an hereditary character; nevertheless, when the comb has reached its full *natural* development, further growth of an acquired nature may easily be obtained by causing an increase in bodily temperature either by the use of stimulating and heating foods or by keeping the birds in an exceptionally warm atmosphere.

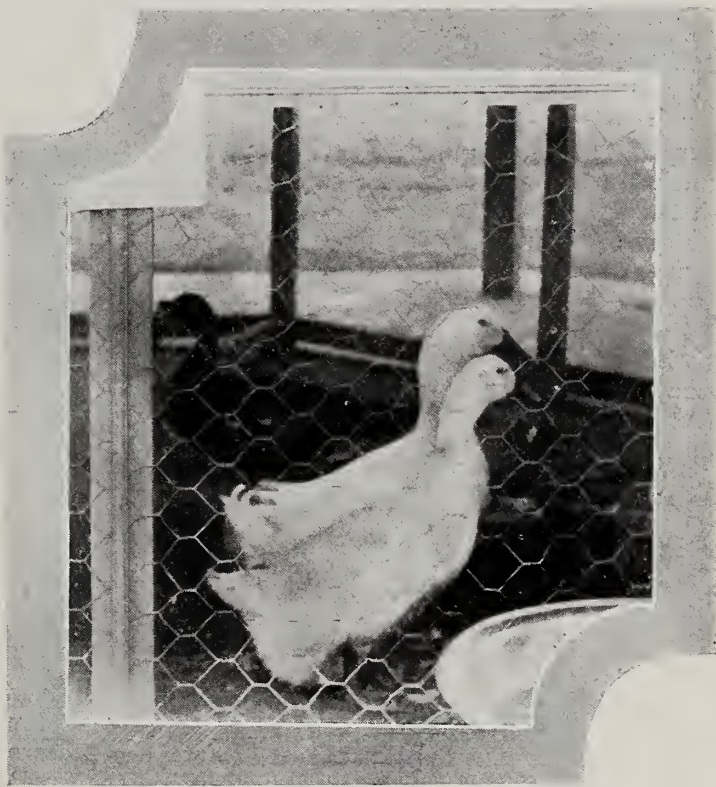
The comb regulates the bird’s temperature. As the bodily heat rises (when the birds are in full breeding condition), the constant, although almost imperceptible, growth of the comb keeps the temperature at about normal. In a naturally small-combed breed (such as the Orpington), where the comb is more or less deficient in its proper function, the temperature at last rises to a point that decidedly indicates fever. The egg supply is then checked, and the bird becomes what is generally termed “broody.”

Understanding, then, the function of the comb, we can easily see how, by stimulation, we can in certain breeds obtain additional development as an acquired modification.

(To be continued.)

POULTRY PECULIAR TO THE ISLAND OF ARRAN.

TWO varieties of fowls peculiar to the Island of Arran are the Rumpless and the Creepie. The Rumpless is not found anywhere in the United Kingdom, except around Brodick and Lamlash and the surrounding crofts, and it enjoys a good reputation as an egg-producer. The popular variety is the black. The cocks have large, well-serrated combs, whilst the hens have folded combs and large, thick lobes. These blacks are really tailless Minorcas, although they are hardly so fully developed in head properties. They are, however, quite as good in colour, and have a similar shape of body. At one time these fowls were bred largely by the natives in South Africa, and were known as Kaffir fowls. The variety has been allowed to die out in other parts of the kingdom, owing to tailless birds being as a rule unable to produce fertilised eggs. The Arran islanders have overcome this difficulty by mating the tailless hens with a male bird carrying his full complement of tail feathers. The Creepie is



A PAIR OF PEKIN DUCKS [Copyright which have carried all before them in the Argentine Exhibitions.]

known in other parts as the Bakie, and is also registered in the Poultry Club’s books as the Scots Dumpy. Had it not been for the Arran breeders this old variety would have become extinct. Undoubtedly a large number have been crossed recently to give stamina to the declining breed, which has not improved the characteristics of the stock. This breed has very short legs with a great long, square-shaped body, resembling the Dorking to a certain extent. This shortness of leg, combined with the heavy body, gives them a waddling and almost duck-like gait. The dumpy has recently come back to popularity, but the present-day breeders have to thank the islanders of Arran for saving this grand old variety from extinction. —The Scotsman.

FANCY MATTERS.

By "EXHIBITOR FOR TWENTY-SEVEN YEARS."

[We are pleased to inform our readers that we have completed arrangements with one of the leading and best-known exhibitors of the day to contribute a monthly article on matters of interest to the Fancy. For the moment our special correspondent wishes to remain anonymous.—Ed., I.P.R.]

SUNDAY POULTRY SHOWS.

The executive of the great New York Show, held annually at Madison Square Garden, this year introduced the innovation, as an experiment, of admitting the public to its exhibition on the Sunday over which the event extended. The result was that a decorous and interested crowd visited the venue, and the management has decided that the "Sunday Parade" shall in future be a feature of America's cardinal poultry fixture. This has led to the question of Sunday poultry shows being widely discussed in this country. On the one hand it is argued that to attend a poultry show on a Sunday is no worse than playing golf or kindred games on the Sabbath; also that, as a humanising factor, the inspection of creatures that are among the most beautiful in animated nature far surpasses many amusements that are now not only tolerated but are regarded as assisting in the betterment of the commonalty. Antagonistic views have, however, been vehemently expressed; and not a few have not hesitated to declare that they will never lend support to a poultry show that is open to the public on a Sunday. There is probably much to be said on both sides of the question. But one thing in connection with the matter that one may prognosticate with some certainty is that the Sunday poultry show, as an institution in Great Britain, is not in the immediate future.

THE RESUSCITATION OF THE BUFF WYANDOTTE.

Is the Buff Wyandotte again to become a popular variety? Having regard to the beauty and utility of the fowl one hopes so; but it is doubtful if it will ever enjoy anything approaching a "boom." The Rhode Island Red invasion has spoilt that, since the two fowls are in appearance very closely allied. However, one cannot help admiring the recent efforts of a few well-known fanciers, chief among whom are Messrs. Richard Watson and M. Harrison, to bring the fowl's undoubted merits to the notice of the poultry-keeping public. A club has been formed solely in the variety's interests, and has been inaugurated in encouraging circumstances, since already there is a very fair membership. Compared with the other popular varieties of the Wyandotte family, the Buff lacks type; and that is the point which the club has set itself to improve.

THE COLOUR OF RHODE ISLAND REDS.

The artificial colouring of Rhode Island Reds is a question that has recently exercised the minds of several fanciers in certain quarters; and it has been persistently and insistently stated that many winning birds have been subjected to an artificial process known as "Redding." Indeed, so considerable became the discussion on the subject that the Rhode Island Red Club officially investigated the matter. A special committee meeting was held, at which the

most prominent members were present, to consider the report of Mr. A. J. de Hailes on feathers taken for analysis from birds at the Crystal Palace Show. The report stated that there was no evidence of dyeing, but, owing to the minute material the analyst had to experiment on, he was unable definitely to state whether any artificial preparation, irrespective of a dye, had been used; but, as the result of considerable research work on the question of artificial preparation, he was confident that, given a fair sample of feathers, he could readily detect those that had been artificially prepared. Now that detection is possible, the committee is determined to take such steps as will expose any offender in the future, and, at the same time, it will report the matter to the Poultry Club. All honour to the club for the move it has taken. But if it requires the resources of a chemical laboratory to settle the question as to whether winning birds have or have not been subjected to artificial colouring matter, it looks very much as though we are yet some distance from a satisfactory solution of the problem.

TWO NEW VARIETIES.

The latest varieties that have been seen in the poultry exhibition arena are the Rhode Island White and the Golden-barred Plymouth Rock. The former has a lady—Miss C. A. Reid Powell—as sponsor; and she declares that the fowl, besides being extremely handsome in appearance, is a good layer, and is by no means to be despised on the table. Indeed, she states that the variety is the best layer she has kept during an eleven-years' experience of poultry. Whether, as she believes, the fowl will become popular when it is better known remains to be seen; but it is somewhat problematical, since it bears so strong a resemblance to an already very popular variety—namely, the White Wyandotte. As regards its vogue in America, the land of its origin, news has just come to hand that the American Poultry Association has refused to recognise the fowl as a distinct variety.

Of the Golden-barred Plymouth Rock little can yet be said, for although there have been repeated rumours of its wonderfully attractive appearance, it was only at the late Otley Show that one had an opportunity of seeing it in the flesh, or, rather, feather! That it is a beautiful fowl cannot be disputed; but it will have to be bred larger ere it will appeal to the majority of poultry fanciers in this country. True, so prominent an exhibitor as Mr. Frank Bloomer recently gave it as his opinion that before long there would be a big boom in Golden-barred Plymouth Rocks, as the bird was "most taking." But the general consensus of opinion of those who saw the specimens of the variety on view at Otley was that more size is required to make the Golden-barred attractive to British tastes.

SOME COMING EVENTS.

An interesting announcement respecting the Wirral and Birkenhead Agricultural Society's Show at Bebington is that this year it will be held in June, instead of September, as previously arranged. The

council arrived at the unanimous opinion that last year the show was held at too late a date, so it decided to arrange for the fixture to take place this year on June 24 and 25. The prospect of warmer weather in June and the longer days permitting the show to be kept open until a later hour were the determining factors in the council's decision. Moreover, as the "Royal" Show is being held at Shrewsbury the week prior to Birkenhead, it is certain that many country exhibitors will be in the district at the time of the Bebington event.

Hayward's Heath Show, which has for some years been regarded as the "preliminary canter" for the "Dairy," will be held on September 17 and 18. The usual extensive classification has been provided, and again, in most instances, specialist judges will officiate. So far the following adjudicators have consented to act: Messrs. John Wilkinson, Buff and White Orpingtons and Plymouth Rocks; H. Corrie, Black and Blue Orpingtons; C. N. Goode, Wyandottes; A. J. Falkenstein, Sussex; R. S. Marsden, Game and Leghorns; W. W. Broomhead, ducks, &c.; C. Heywood, variety bantams; and W. Henfrey, table poultry. Mr. Ernest E. Doughty, the hon. secretary, is sanguine of obtaining a special prize to be competed for by every variety scheduled.

Kendal Game Show, the event so far as exhibitors of both large and small Game fowls are concerned, will take place on October 28 and 29, and, as was the case last year, provision will be made in the schedule for variety bantams. Mr. J. C. Parker (11, Cliff Terrace, Kendal) will, as formerly, have charge of the secretarial arrangements.

The old-established Royal Counties Agricultural Society will hold its show on Southsea Common, Portsmouth, on June 10 to 13. Besides providing a comprehensive prize-list and several special prizes, the society has arranged with the respective railway companies to convey hampers of poultry from and to the railway stations to the show ground, at a charge of threepence a hamper, which charge should be paid by exhibitors to the railway companies. Messrs. W. M. Elkington and A. A. Fleming will officiate as judges.

Another important poultry fixture is Tunbridge Wells, on July 22 and 23. The usual first-class array of fowls will be on view, and Messrs. T. Lambert, F. Bloomer, and W. W. Broomhead will place the awards. Full particulars of the show may be obtained of the secretary, Mr. Herbert H. Pain, 87, High Street, Tunbridge Wells.

INTERESTING NEWS.

The correspondence between Mr. J. C. Cayley, secretary of the Old English Pheasant Fowl Club, and Mr. T. Threlford, secretary of the Grand International Show, has revealed a fact that came as a considerable surprise to the majority of poultry exhibitors. It is that last year the Crystal Palace Show practically reached its limit; and those who fondly imagined that "the greatest show of its kind on earth" could be indefinitely increased, have received something in the nature of a shock. In the correspondence in question, Mr. Threlford goes so far as to express his delight that the letters that have passed between himself and Mr. Cayley were made public, remarking that "they will probably be the means of bringing to the notice of the numerous specialist clubs the necessity of curtailing their classifications."

As a sign of the times, it is interesting to learn that the Leghorn Club has unanimously agreed not to grant special prizes to summer shows, on the ground that competition at such exhibitions is usually far from good.

The proposal to form an "International Indian Runner Duck Club" has created some comment in waterfowl circles. The matter was discussed at a recent meeting of interested breeders and exhibitors, but so far the result has not been divulged. In view of the great popularity of the breed in America, the project may have far-reaching and beneficial consequences.

GERMANY'S IMPORTS.

GERMAN imports of eggs and poultry continue to advance. In 1909 these were as follows:

Eggs	£7,827,950
Poultry	2,759,300
Total	£10,587,250

The returns issued for the last two years, rendered into English equivalents, are:

	1912.	1913.
Eggs	£9,504,800	£9,374,250
Poultry	2,720,650	2,670,650
Totals	£12,225,450	£12,044,900

Thus in the latter year there was a slight decline, probably due to greater shipments to the United Kingdom.

So far as eggs are concerned, the principal supplies received were as follows:

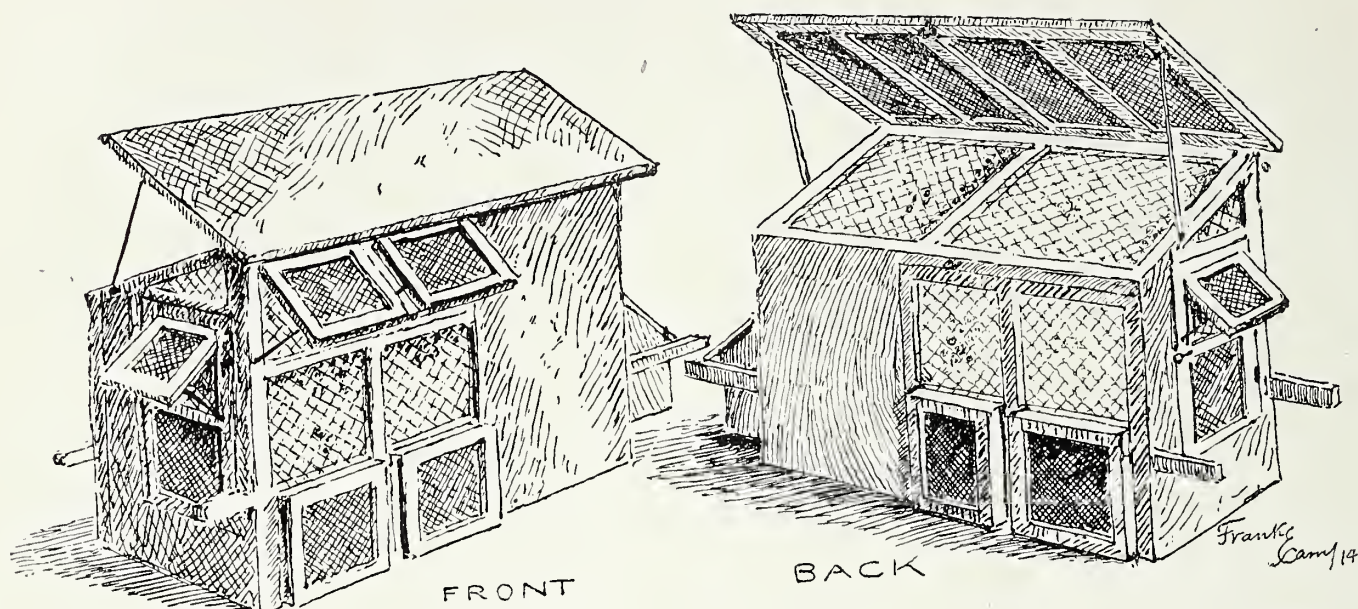
	1912.	1913.
	Gt. hds.	Gt. hds.
Russia	12,039,666	10,195,250
Austria-Hungary ..	11,199,333	12,096,983
Netherlands	1,405,550	1,212,666
Italy	912,133	919,083
Roumania	890,416	659,466
Bulgaria	595,583	1,112,800
Servia	212,000	442,466
Denmark	205,450	175,016
Turkey	184,950	477,483

The most notable feature of the above figures is the increase of supplies from South-Eastern Europe.

With respect to poultry, the imports of live geese were: 1912, 8,587,268 (from Russia 7,387,454), valued at £1,773,250; 1913, 8,606,622 (from Russia, 7,433,484), valued at £1,779,350. Of fowls: 1912, 106,269 doz., value £773,050; 1913, 104,813 doz., value £759,750. Russia and the Netherlands sent the most, Italy and Austria-Hungary following. Of ducks: 1912, 21,136 doz., value £174,350; 1913, 22,008 doz., value £181,550, mainly from Russia.

Mr. Tamlin's Exports.

The following is a list of Mr. W. Tamlin's exports for April, 1914, which total 152 machines in all: Thirty 100 and ten 60 incubators, five 100 and five 60 foster-mothers, to Goso and Martinez, sole agents for the Argentine; eighteen 60 and nine 100 incubators, to John F. Marshall, sole agent for Transvaal, South Africa; fifteen 100 incubators and five 100 foster-mothers, to M. Andre Masson, sole agent for France; fourteen 60, eighteen 100, and four 200 incubators, to Messrs. Chandler, sole agents for Victoria, Australia; one 100 incubator and one 100 foster-mother, to Mr. Antonio Rivas Mercada, Mexico; one 100 incubator, to Mr. L. Fraigosina, Chiasso, Italy; one 60 incubator, to order of Ellis-Kislingbury and Co., to Durban, Natal; five 60 and two 100 incubators and seven 100 foster-mothers, to M. Lebaron, Maronne, France; one 60 incubator, to Captain W. P. Salf, Gibraltar.



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A MOVABLE INTENSIVE FOWL-HOUSE FOR SUMMER USE.

By FRANK ESAM.

THE stock of birds kept by even the small poultry-keeper is usually larger in the summer than in the winter, and it is difficult to find accommodation for them all without overcrowding. This is more often the case towards the end of the summer, when the March and April hatched birds are growing to maturity and it is too early to sell out the two-year-old stock. The cheapest way to overcome the difficulty is to build inexpensive canvas houses, which can be dumped down in any part of the garden or field, and which, though entirely weatherproof, will be capable of being opened in all directions so as to admit an abundance of sun and air. Such a house will accommodate six or eight laying hens or more young pullets or cockerels, and can be moved about on any spare piece of ground after the potatoes or other vegetables are taken up, and the cost would be so small as to be within the range of anyone's pocket.

The house which is illustrated here measures 7ft. long by 3ft. wide, and is so arranged that all the ground space is available for scratching. It is made in sections from 2in. by 1in. battens, on which are fixed plasterers' laths 3in. apart, and over these the canvas or roofing-felt. The latter will be found very useful for this purpose, as it can be obtained in 15-yard rolls, at about 2s. 6d. per roll, and requires no tarring or other preparation. If fixed to the framework by means of plasterers' laths with flat-headed nails, and limewhited on the inside, it will last for years and will always keep the weather out.

The front of the house is 7ft. long by 4ft. 6in. high, and is framed together out of 2in. by 1in. battens by halving the ends and cutting out to half thickness where the battens cross each other, so that the whole framework is flush. It will require one 10ft. length, three of 7ft., and four of 4ft. 6in. each. Nail the plasterers' laths 3in. apart on to the framing where

shown, and cover with felt, using more laths with which to fix the felt, and leaving 2in. of felt overlapping at the roosting end, so that it can be turned round the corner when the house is finally fixed together. The four remaining spaces are covered with 1in. mesh wire-netting on the inside and the four shutters, made of 1in. by 1in. batten and covered with muslin, are hung on the outside, as shown, the muslin being stretched over them and fixed down with laths. The shutters should be made to fit loosely and hung on 2in. butts, an iron stay being fixed to each of those at the top. The back is made in the same way, and is 3ft. 6in. high. The middle rail of both back and front should extend 2ft. beyond the frame at the roosting end, and from 9in. to 1ft. at the other.

As all the illustrations are drawn to scale, it will be scarcely necessary to give many further details. The two ends are, of course, alike in outside measurement. That in which the door is fixed must have its second rail 1ft. from the bottom instead of 1ft. 6in., as in the other sections, in order to allow the door to be as high as possible. Fit the door loosely so that it will always open and shut easily, and cover it with wire-netting, fitting a shutter to the upper half similar to those in the front. If it is desired to have the nest-boxes on the outside of the other end, the space up to the second rail must be left open, and the boxes, made as shown in the drawings, fixed against the opening.

Limewhite all the sections before fixing them together, and be very careful that they are fixed at right angles, dipping the screws in grease and putting two at each corner. Turn the overlapping felt or canvas round the corners of the roosting end and cover the top with wire-netting, fixing it down with laths to make a neat job and to cover up all rough edges.

The roof will project 2in. over the front and 3in. over the other sides, and will consequently measure

7ft. 6in. by 4ft. It will be made in the same manner as the front and back, and will require three 2in. butt hinges and a hasp and staple, as well as two iron stays to hold it up when open.

The inside arrangements consist simply of a dropping-board resting on the rails 1ft. 6in. from the ground, and a perch let into slots 4in. above this. The water vessel, grit, flint, and bran hoppers should be hung on the same rail at the back of the house near the door, so that they can be filled without going inside.

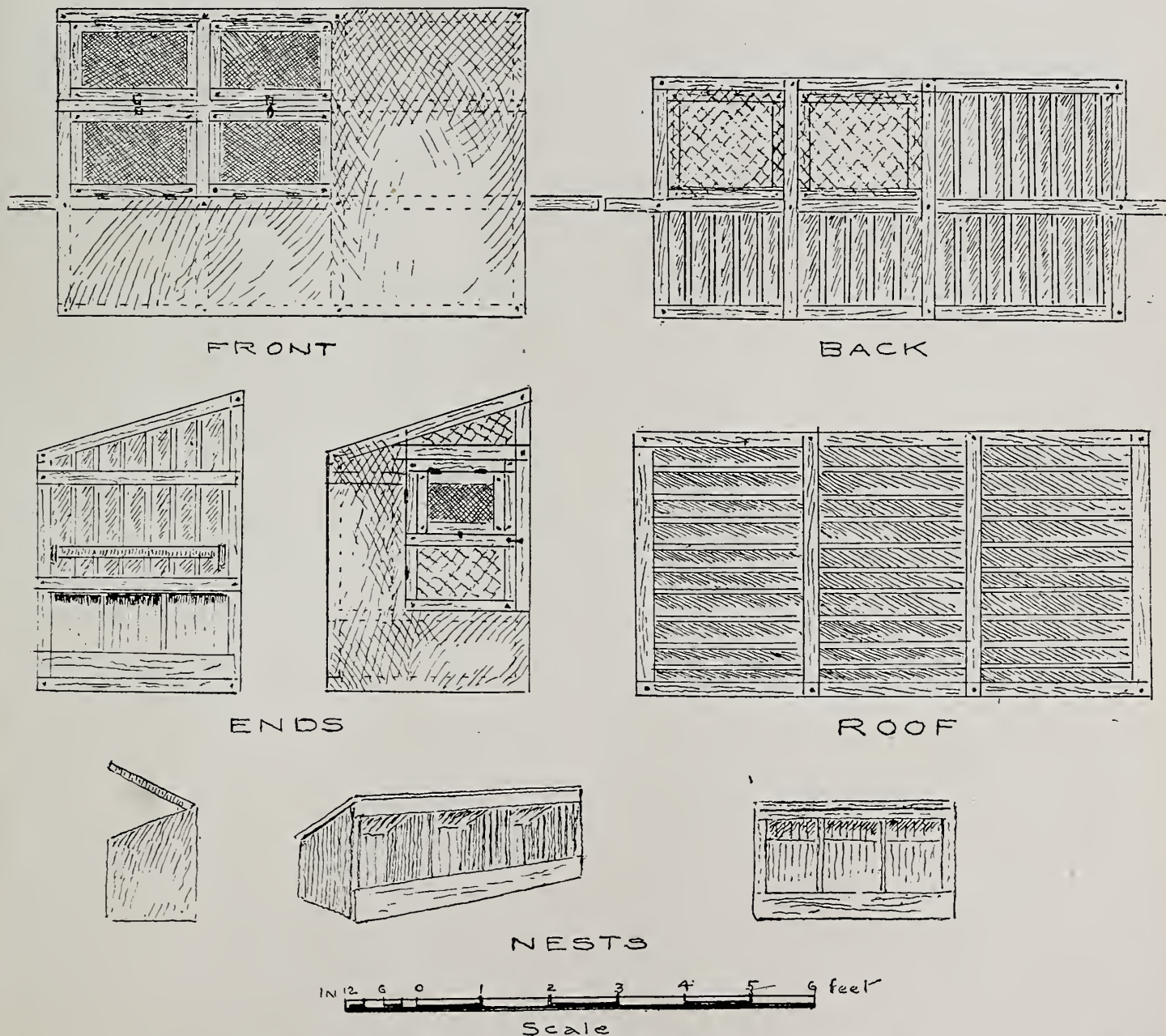
In a fairly sheltered position such a house as this can be used with satisfaction throughout the summer, and if all the shutters and the roof are kept open when the sun is shining the birds will be as well off as though running free. If moved about on spare gardening ground, the surface can be dug over every day and the corn buried, thus giving the birds continual exercise. Birds kept on this system will be found to produce more eggs and be healthier than if kept in a stationary house, and the trouble of cleaning and attendance is not so great, especially if the houses are

moved every day, in which case the dropping-board can be dispensed with.

The materials required are: 200ft. of 2in. by 1in. battens; 50ft. of 1in. by 1in. battens; 350ft. plasterers' laths; 1 yard of muslin, double width; 1 roll of tarred and sanded felt; 3 yards of 1in. mesh wire-netting; 3 yards of 2in. mesh wire-netting; 10 pairs 2in. butt hinges; 5 short stays, 2 long stays; and the necessary nails, screws, and buttons; and the cost of the house when finished should not be more than 13s.

Next Laying Competition.

Proposals are reported for another Laying Competition, arranged by the Utility Poultry Club, if, we suppose, a further grant is obtained at the Harper Adams College, the competition to commence in October next, and run for ten months, so as to give the runs a rest. This is on a different principle, as five sections of ten pens each are to be allotted respectively to Wyandottes, Leghorns, Orpingtons, Rocks, and Sussex.



PLAN OF THE MOVABLE INTENSIVE FOWL-HOUSE.

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POULTRY INSTRUCTION AND ORGANISATION.

CONDUCTED BY EDWARD BROWN, F.L.S.

PROLOGUE.

The statement is frequently made that a man's work is not fully recognised until he is dead. That is equally true of societies and other public bodies. Whilst recognition of the value of the work done by the National Poultry Organisation Society during the fourteen years of its existence was abundant in this and other countries, I have been much gratified by the universal expression of regret at the termination of its operations, thus fully confirming my own views. Upon that aspect I do not propose to dwell, except to thank those who have in one way or another given voice to their opinions.

What, however, has surprised me even more are the many letters regretting suspension of the *Journal of the N.P.O.S.*, upon the ground that it embodied valuable features which were helpful to many and not met with elsewhere. The severance of my connection with the Agricultural Organisation Society, as recorded in the March POULTRY RECORD, brought that publication also to a termination.

The question arose as to whether arrangements were possible for carrying out the same ideas elsewhere. The way was not open to maintenance of a separate publication by reason of the cost. The next step to consider was incorporation with an existing journal. I have therefore accepted the offer of the Editor to make the special features of the *Journal of the National Poultry Organisation Society* a permanent part of the ILLUSTRATED POULTRY RECORD and to conduct it. This arrangement will, I trust, be acceptable to those who have expressed their appreciation of the *Journal* during the seven years of its existence.

In order to secure continuity, in the present issue I have brought "Current Poultry Literature" down from the last issue.

EDWARD BROWN.

SELECTIONS AND REVIEWS.

Dog versus Fox.

A writer in the *New York Sun* says that the wandering tribes of Israel used geese freely for food. That would be so wherever wild geese were met with, but nothing is stated as to when geese were domesticated. He goes on to say :

A pretty French legend says that hundreds of years ago numberless geese lived in the marshes of the sparsely settled country. They were happy because luscious grass, herbs, and water were abundant. The only drawback to their happiness was the conduct of the foxes, who thought nothing of stealing a goose for dinner.

One day a vagabond dog, outcast because of his propensity for killing sheep, stumbled upon the hiding-place of the geese. A friendship developed between the dog and fowls, resulting in an arrangement in accordance with which the geese hid and protected the dog in return for his protection against the foxes. It was a happy plan. The enmity between dog and fox thus engendered, declares the legend, has lasted through all the ages down to our own time.

Where the Profit Comes In.

Profit is not determined by either the number of eggs laid or by the cost of food supplied, but by the margin existing between the two. Frequently, nay, generally, a hen which lays fewer eggs is the more profitable, simply because she has cost much less to feed. Mr. A. T. Johnson, writing in the *Agricultural*

Gazette upon field-layers for farmers, makes the following observations :

The hen on the colony system may not always lay as many eggs as the crack layer which enjoys more luxurious living, but we must bear in mind that an egg is only profitable in proportion to what it has cost to produce. The outlay in appliances and food essential to the welfare of the field-layer is infinitesimal in comparison with that outlay which must be placed against the bird kept in a more elaborate manner. For the former no wire netting is necessary; the portable houses need not be so large, nor so expensive, as those required for the others. She, the hen on the open field, will pick up a large part of her own living, and by so doing materially assist the farmer not only to keep the food bill down, but by destroying noxious grubs and devouring seeds of weeds. As to the labour and attention she demands, I have no hesitation in saying that colony layers do not require any more than fowls penned on the ordinary house and run plan, and certainly much less than those which are kept on intensive principles.

Limitations in Mating.

The science of breeding is yet in its infancy. All tendencies are towards complexity, yet there are simple factors which cannot be too often reiterated. Mr. J. Haddington, writing in the *Agricultural Gazette of New South Wales*, says :

Well-bred birds are essential if uniform results are to be obtained. Type, for instance, is the quality that carries the characteristics of the respective breeds. Each breed has its own definite type, and this must

be fully grasped before intelligent mating can be accomplished. Breeders, even only for utility purposes, will do well to pay more attention to this matter and carefully study the standard for the breed. It is not at all difficult to master sufficient of the requirements in type for the purpose of the utility breeder, who is more concerned in shape, outline, weight, and general conformation of the birds than with the finer points for show purposes. A fowl is not necessarily a Leghorn because it is white, or an Orpington because it is black. It is one or the other because it conforms to the shape and general characteristic of its particular breed.

Mating birds merely because they lay so many eggs will not preserve the characteristic of the bird that lays them. Under that system the breeds would be lost and the power to produce with it. Therefore it is necessary to aim first at perpetuating the breed it is intended to keep. Then concentrate upon improvement on lines it is wished to perpetuate, whether that be eggs or flesh, because, no matter how good the foundation stock obtained, if the subsequent matings are not made with skill and judgment their good qualities will be lost. Apart from line breeding, the main consideration in careful mating to produce uniform results is affinity of type. From what has already been said in this regard it will be noted that fixity of type alone can be depended upon to carry the characteristics of a given breed; but it should be borne in mind that there are always some differences in interpretation of type that amount to nothing more than a family or strain likeness. Notwithstanding these variations, they may conform to generally accepted type. These strain likenesses may amount to much or little, and when introducing new blood one needs to be somewhat careful in this respect, because any rude clashing of types will almost certainly end in disaster to the acquired traits.

Remedies for Bad Feathering.

Under modern conditions chickens are often slow in feathering. As an excuse it has been suggested that what would go into feather is used for frame and flesh. Such assumption is unwarranted. A chick or a hen that feathers badly shows signs of weakness. In the *South Australian Agricultural Journal* Mr. D. F. Laurie makes the following suggestions:

Many people, especially those who breed some of the heavier sorts of fowls, complain that the chickens do not feather well, but remain bare. During the next few months moulting will be general, and unless the food supplies the necessary material, the system cannot elaborate the feather-forming compounds. Feathers are largely built up of a protein material called keratin, which contains a large percentage of sulphur. The white of an egg also contains sulphur. To give crude sulphur to poultry is not always advisable, and even when it is, care is necessary to give only a proper quantity. An old-fashioned method of administering sulphur is still the best—viz., as sulphuret of lime (*calcii sulphurati*). It is made as follows: Procure a large iron saucepan—an old one will do. Place in the saucepan four lumps of quicklime each as large as a duck's egg. Slake the lime with boiling water, and then stir in 6oz. of flowers of sulphur and add two quarts of boiling water, stirring gently. Boil this mixture for an hour and then let it

cool and settle. Pour off and bottle the clear liquid. Keep this out of the dwelling-house, as the fumes given off are most disagreeable. Of this liquid for every eight hens or twelve chickens add to the water used for mixing the daily mash one teaspoonful.

Another very good mixture is as follows: Take half a pound of linseed (flax seed), place in a large saucepan and boil to a jelly; stir in half an ounce of each flowers of sulphur and common salt. Do not keep this in a dwelling-house. For each fowl add one teaspoonful to the daily mash.

Proper Sulphur Ointment: This is very useful for applying to places denuded of feathers. It is also excellent for parrots, cage birds, &c. It may be made in ounces or pounds according to the following formula: Flowers of sulphur, 1; glycerine, 1; lard, 10; white wax, 4. Melt the glycerine, lard, and white wax in an iron pan, and while cooling stir in the sulphur.

Rearing in Hot Weather.

The merits of artificial and natural methods of rearing have often been discussed. We have yet much to learn in this direction, and whether the fault, if any there be, is that of the hen or the machine. Mr. Randolph Meech contributes an interesting statement to his paper *Eggs*:

My observations have led me to conclude that the hen will do more satisfactory work during the hot weather than the incubator or brooder. During a very dry summer, and especially if the weather is thundery, eggs will sometimes addle wholesale in incubators, and chicken will die like flies in the brooders. It is curious, but I am bound to admit we see this less both in hatching and rearing with the old hen during this period than with the incubator and brooder. The old hen will cluck and keep her chicks going all the time, and in the brooder during the very hot months we find, perhaps, half the chicks lifeless almost. They stand for hours together in the sun as if dazed or half asleep. These chicken are often termed "*noddors*" from the fact of their continually nodding as they stand with their eyes shut in the sun. The poultry-keeper who has not been troubled with "*noddors*" can congratulate himself. I am seriously of opinion that these "*noddors*" have increased at an alarming rate since the introduction of the hot-air rearer from America.

A Point in Brooder Management.

The complaint is often made that brooders are stuffy and the air impure, which is true to a very great extent. The importance of fresh air in abundance has never been fully recognised by makers or operators. Mr. C. L. Pease, writing in *Poultry*, records an interesting experience:

Three weeks ago I hatched about twenty strong chickens out. In due course I put these in my brooder (which, by the way, is a 100-chicken size, and is of an admittedly good make). I followed the instructions which had been sent with the machine, and kept the temperature under the hover at about 80deg. and the ventilators open or partially open according to the outside temperature. Then came the disaster! The chickens, although from grand stock, became weak on their legs. They hardly ever came out from under

the hover, and one by one they died until I had only four left, which I saved by putting them with a hen.

On the 7th instant I hatched twenty-five more chickens out, and put them in the brooder. For the first day I left the hover on, but on the second I took it off for a short time. On the third day the hover was off for longer still, and by the end of the week the chickens were without it altogether, except at night time.

The result has been beyond all expectations. Never have I seen stronger or more healthy chickens. They run about and scratch all day long, and are growing splendidly. Of course, although the hover is off, the lamp is still burning, so that there is some extra heat in the one compartment of the brooder.

Effect of Moisture in Poultry Houses.

Theoretically everyone recognises the undesirability of moisture in houses; practically, at least so far as hens are concerned, this question is often ignored. Mr. F. L. Platt, writing in the *Reliable Poultry Journal*, states the position clearly and emphatically:

We will consider the question of moisture first, since dampness in the ordinary tight hen-house is apparent, and the question is not one that needs to be submitted to argument.

Moisture is continually dispersed from the throats and lungs of the fowls, and provision must be made for carrying it out. Sunlight, unaided by ventilation, will not dry out the coop; indeed, the window panes will become covered over with moisture that has condensed and the direct rays of the sun will be shut out.

Dampness gives growth to germs, to fungi and bacteria. Fungi do not grow on seasoned lumber, but flourish on timber that has fallen in the woods, the bark of which is wet by the rain and shadowed by the foliage of surrounding trees. The way to preserve not only timber, but hay crops, and one of the most effective ways of preserving fruits, is by drying. Bacteria thrive in dampness and moisture; indeed, they only multiply in the presence of considerable quantities of moisture, and as materials dry they cease to grow in them.

It is on this basis that damp stables and hen-houses are unsanitary. With the presence of dampness the tubercle-bacillus is no longer repressed and may become dangerously operative. Likewise the micro-organisms, whose actions result in colds and roup, are an equally dangerous enemy of fowls and multiply rapidly when enjoying the moisture that they require for growth. The kernel of this is—roup is contagious in a damp hen-house.

Women's Opportunities.

In these days it is necessary that extended opportunities shall be provided for women, which explains why so many have taken up poultry-keeping. Miss E. C. Davies, in the *Queen*, thus states the position:

Among the out-of-door professions open to women poultry-farming may certainly be reckoned one of the most popular, and every year sees a larger number of women entering upon it as a means of livelihood. At present the field is far from overcrowded and the possibilities for the poultry-keeper appear to be almost unbounded. The life is a very fascinating one, full of interest and variety, and on the utility as well as on

the exhibition side there is ample scope for personal research and investigation. It is, of course, a mistaken idea to suppose that a successful poultry farm can be built up without a good deal of really hard work. There must be a real love for the work, common sense, and perseverance, a knack of making the most of opportunities, and in the background a sound business training in both the practical and theoretical sides of the business. I should not advise a girl who had already a settled occupation in which she was making a good income to abandon this and commence poultry-keeping, unless she had a very clear idea of what the latter occupation involved.

The poultry farmer must not be afraid of detail work or of routine. Much of the work is monotonous, and Sundays and holidays are as full as any other days of duties which cannot be postponed or neglected. The girl who expects to make money out of poultry without being prepared to work hard for it will be sadly disappointed! Competition is very keen in this as in any other occupation nowadays, and, in addition to a genuine love for the work, there must be the necessary personal qualifications and a really sound training on approved modern methods.

Again, a certain amount of capital is absolutely necessary for the establishment of the farm and for the period which must elapse before profits begin to come in. The person who would risk the whole of a small capital in establishing a farm, knowing little or nothing of the science of its management, and having no income with which to support herself during the building-up period, would only have herself to blame for failure, since in no other trade or profession would such egregious folly be dreamt of.

Fashions in Disease.

The editor of *Farm Poultry* has been letting him self go on the question of white diarrhœa, about which he has been very sceptical for a long time. After referring to queries received by him, he says:

Over and over, again and again, until I was sick and tired of it, I pointed out to these inquirers that every whitish discharge was not necessarily "white diarrhœa"; that it might be simply a mucous discharge due to a cold affecting the bowels; that the diarrhœas which later became of darker hues often were white or whitish at the beginning; and that "white diarrhœa" was peculiarly a disease of chicks, and found mostly in chicks in brooders.

But all this was quite a waste of time and ink and paper. Most of the good people wouldn't have it that way. Everybody's poultry was having *white diarrhœa*, eminent investigators were having hot controversies about "the bug" that caused it. Imposing bulletins were issued and learned lectures given, and almost every writer on poultry for a poultry or agricultural paper was frequently warning poultry-keepers of the havoc it was making. So I suspect that many inquirers in their own minds concluded that an editor who did not recognise the awful prevalence and dire character of "the dread disease" was hopelessly behind the times.

How does it happen that people are now so quick to discover "white diarrhœa" where it does not exist, when prior to the publicity given to it they hardly noticed the common whitish diarrhœa at all? The explanation is very simple. The average observer

distinguishes all diseases by a single symptom and supposes that that symptom is the identifying feature of the disease. Further, the average poultry-keeper does not observe any but most pronounced symptoms of disease, and, as a rule, does not discover that a bird is sick until it is very sick. Before they were so thoroughly scared about "white diarrhoea" compara-

tively few people noticed mild cases of diarrhoea with whitish discharges or any case of diarrhoea until it became quite severe. But since so much has been said of the ravages of "white diarrhoea" everybody is on the lookout for it, and the least white in a loose excrement is immediately noticed and pronounced "white diarrhoea."

BOOKS AND PUBLICATIONS RECEIVED.

REPORT OF THE TWELVE MONTHS' POULTRY LAYING COMPETITION CARRIED OUT IN CONJUNCTION WITH THE UTILITY POULTRY CLUB, 1912-13. Newport, Salop: Harper Adams Agricultural College. 50 pp., illustrated.

REPORT OF AGRICULTURAL EXPERIMENT STATION OF RHODE ISLAND, 1912. Kingston, R.I., U.S.A.: Agricultural Experiment Station, Part II. 54 pp.

The Division of Biology is reported to have undertaken several important investigations, notably that on Blackhead in Turkeys, but no positive results can yet be reported. The statement is made that the problem cannot be solved from "conscientious attempts to render chances for infection less—such as raising the young turkeys apart from fowls, and keeping them as far as possible on fresh ground. This is surely to be recommended, but . . . the blackhead question now resolves itself largely into the possibility of combatting the disease by medication or by a rational method of feeding." We believe that in this direction a fundamental error is being made. What has to be discovered are the methods of prevention, and, therefore, conditional questions are supremely important.

EXPERIMENT STATION RECORD. Washington, D.C., U.S.A.: Department of Agriculture. No. 1. Vol. XXX., January, 1914; No. 2, February, 1914; No. 3, Abstract Number.

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MONTHLY BULLETIN OF ECONOMIC AND SOCIAL INTELLIGENCE. Rome: International Institute of Agriculture. Vol. 37, No. 12, December, 1913; Vol. 38, No. 1, January 1914; Vol. 38, No. 2, February, 1914.

JOURNAL OF THE DEPARTMENT OF SOUTH AUSTRALIA. Adelaide: R. E. E. Rogers. Vol. XVII., No. 7, February, 1914; No. 8, March, 1914.

OUR DOMESTIC BIRDS: ELEMENTARY LESSONS IN AVICULTURE. By John H. Robinson. London: Ginn and Co. 317 pp., illustrated. 6s. net.

That Nature study will become more and more a subject for teaching in schools is certain, more especially in rural areas, for which special books are needed. In that case, poultry and domestic birds generally should be studied to a greater extent than ever before, not alone for the facility with which the knowledge thus acquired can be applied in future life, but also that observations on the practical side can be made so fully and easily, thus emphasising the teaching. We welcome, therefore, this excellent manual, which deals generally with birds in their relation to man, more especially as to poultry of all sorts and other domesticated birds down to cage birds. In this country, however, the work would be too advanced for ordinary rural elementary schools; it would be valuable for secondary or higher grade pupils, and we should imagine that such would be the case to some extent in America. It would,

however, be specially useful to place in the hands of teachers, leaving them to simplify in accordance with the capabilities of their scholars. In the preface Mr. Robinson wisely says that in teaching of this class "One period a week for forty weeks is better than a period a day for forty days, because the average person, old or young, retains a great deal more of what is read or heard about a diversified subject if the ground is covered by easy stages with comparatively long intervals between."

PRODUCTIVE POULTRY HUSBANDRY. By Harry R. Lewis, B.S. Philadelphia and London: J. B. Lippincott Company. 536 pp., illustrated. 8s. 6d. net.

Formerly American poultry books of any moment were mainly copies or reprints of English works. Within recent years, however, the output of original works on this subject has steadily increased, and the amount of experience and observation now available is being thus utilised. Such is in every sense desirable, as the conditions of each country require special treatment. That under review is one of Lippincott's Farm Manuals, and is written by Mr. Harry R. Lewis, who is in charge of the poultry work at the New Jersey College of Agriculture. It deals exhaustively with the whole range of subjects involved, has been designed on excellent lines, and is well illustrated. The main object throughout is evidently to provide a textbook for students. To that end the review and references at the end of each chapter are very valuable indeed, the former indicating what are the special points to be considered in the section, and the latter stating how and where records are to be obtained for further study. Apart from points here and there in which American and European experience do not run on the same lines, it is well adapted for the purpose, and cannot fail to leave a marked influence in helping to raise the teaching of poultry husbandry to a higher level.

PRIMER OF POULTRY INSTRUCTION. By J. C. Graham, Massachusetts Agricultural College, Amherst, Mass., U.S.A. 24 pp.

That one of the most effective methods of influencing any community is by getting hold of young people is generally recognised. We are glad to see, therefore, that the institution named above promotes the formation of boys' and girls' poultry clubs, for which a most useful primer has been issued, dealing in a clear and concise manner with the subject, yet within the compass of those for whom it is designed. This example ought to be largely copied in our own country. As the author says, "There is no kind of work for a boy or girl attending school that is more wholesome, profitable, or instructive than keeping a few hens." From the same source we have a series of "Facts for Farmers," published monthly, some of which deal practically with poultry.

AGRICULTURAL JOURNAL OF THE UNION OF SOUTH AFRICA. Pretoria, Transvaal: Vol. VII., No. 2, February, 1914; No. 3, March, 1914.

AGRICULTURAL GAZETTE OF NEW SOUTH WALES. Sydney: W. A. Gullick. Vol. XXV., Part 2, February, 1914; Part 3, March, 1914.

THIRTEENTH ANNUAL GENERAL REPORT OF THE DEPARTMENT OF AGRICULTURE FOR IRELAND, 1912-1913. Cd. 7298. Dublin: E. Ponsonby, Ltd. 363 pp. 2s. 6d.

It is recorded that the number of egg stations was 72 in excess of the previous year, and of turkey stations 30 in excess. The number of eggs distributed were: Hens and ducks, 78,426 settings; geese, 3,942 settings; and 20,514 turkeys were mated. Thus upwards of 800,000 eggs were distributed. The instructors numbered 36; 15,167 visits were paid; 1,633 classes were held; and 1,778 pupils taught. The training of fatters was continued with good results.

A YEAR IN CHICKENDOM. By J. W. Hurst. London: A. C. Fifield. 184 pp. 1s. 6d. net, paper cover.

The Editor of *Feathered Life* wields a pleasant and prolific pen, ever presenting facts in an attractive manner. This little work gathers up seasonable notes as applicable to the various months of the year, many of which have already appeared elsewhere. As a result, we have a volume of suggestions rather than detailed information, which will lead the poultry-keeper into paths that should be helpful, even without consciously receiving instruction. In fact, the last-named is largely hidden. It is like a pill given in jam. The sweet is seen and attracts, but the active ingredient is none the less there. Probably there are many who prefer knowledge imparted in this way. The book will be welcomed by these, and deservedly

so. Except for those interested in table poultry—and it has a decided Sussex flavour—it does not pretend to be anything more than a bundle of notes. The serious omission is want of a good index. To find anything in it may mean seeking from January to December.

PIGEONS FOR PROFIT. THE WHOLE ART OF SQUAB-RAISING. By Percival Bretton. No. 7, Smallholders' Library. London: C. A. Pearson, Ltd. 125 pp. 1s. net, paper boards.

That there is more to be done in pigeon-breeding on utility lines may be accepted; that it is capable of being profitably conducted on a large scale is a proposition. In America, where much has been attempted in the last-named direction, failure has marked the pathway. Only those have made money who had stock pigeons for sale. What might be done, however, in this country, as in France and Belgium, is for smallholders to keep a few pairs of pigeons, raise as many squabs as they can without interfering with other work, and take in the way of returns whatever can be secured. By the multiplicity of such breeders, not by developments on a large scale in few hands, will success be attained. Statements that 50 per cent. profit on capital invested can be secured are very misleading. If so, why is it not done? Apart from that the book contains in a simple manner directions for pigeon-breeding which are most useful.

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THE SMALLHOLDER'S FIRST YEAR.

CHAPTER VI.

PERMANENT AND PORTABLE HOUSES AND RUNS.

IN the last issue we had something to say with reference to the different methods of poultry-keeping that can be adopted on a small holding. As we stated at the time, we do not propose to discuss in detail the intensive system of poultry-keeping, since this is as yet not thoroughly understood.

No matter what may be said to the contrary, it has yet to be proved that it is possible to rear chickens hatched from eggs laid by birds kept intensively, on the intensive system, and this year after year. One must always take a fairly big pinch of salt with the statements made by advocates of a new system, and even then there appears to be something wrong somewhere.

That birds kept intensively will lay, and lay wonderfully well, is true ; but that such birds can be kept as breeders is an idea in which we do not believe. In fact, it has been proved times out of number that the opposite is the case, and in face of this we regard the whole system, as applied to breeding stock and rearing, as altogether wrong.

As we pointed out last month, there are really only two methods under which fowls can be kept on a small holding. The two to which we refer

are in pens, under semi-intensive conditions, or on the American colony plan.

This point need not concern us further. The question as to the type of house, however, is important. We are bound to confess that we are advocates of the fresh air principle in housing. That is, we hold that an open-fronted structure is the best form to employ. One of the greatest scourges at the present day with our poultry is tuberculosis, and the prevalence of this dire disease can be traced directly to unhygienic housing. We should apply the same preventive treatment to our fowls as is carried out with humans who have a tendency to contract this complaint.

For years past many writers to the poultry Press have been drumming away at readers advising them to arrange for efficient ventilation in their poultry-houses, but their endeavours have been more or less ineffectual. True, some have taken up the idea ; but many of them have gone to the other extreme, and procured a draughty house instead of one that is well ventilated.

The majority of appliance makers have realised the importance of the fresh air system, and have designed houses accordingly. The unfortunate part of the whole business is that some of the manufacturers know absolutely nothing as to the practical side of poultry-keeping, and, therefore, though keeping more or less along right lines,

have made a few structural alterations which spoil the whole effect. There is a right and a wrong way to ventilate a house, and the latter, if employed, produces a result which is even worse than giving too little air.

All that is necessary is to build the house in such a way that the impure air exhaled from the lungs of the birds is passed out, and just sufficient pure air is allowed to enter to take the place of that which has already been rendered vitiated by the carbon dioxide from the respiratory system of the body. Allow a continuous current of air to pass through the house, and a draught is the result.

In practice we prefer a lean-to open-fronted

shutter is provided, 1½ ft. in width, and is fastened at the top of the front at an angle of 45deg. This will prevent any rain from being driven into the interior. A door—with trap-door—is built in the centre of the front.

The perches—two in number—are placed at the back 2 ft. off the floor. One should be 8 in. from the wall, and the other 14 in. away from the first. A dropping-board, made movable, is fitted 6 in. below the perches. The nest-boxes can be arranged at each end, for inside or outside collection, and placed on a level with the dropping-board. This allows the whole of the floor being used as a scratching area. Troughs can be fixed in slots in



AN EXCELLENT TYPE OF POULTRY-HOUSE.

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This photograph was taken on Mr. Walter Buxton's farm, and shows some of his well-known Silver Wyandottes.

house, the wire-netted side being the front or highest part, and the back the lowest. There is one important point in this connection that must not be forgotten. The depth of the house—that is, from back to front—must not be less than 8 ft. If it is made shallower than this it will prove too cold.

Whether used on the semi-intensive system or the American colony plan, a very good form of house to use is as follows: 10 ft. square, 5½ ft. high at the back and 7 ft. high in front. The two ends, the back, the roof, and the lower 3½ ft. of the front should be made solid, employing 1 in. tongued and grooved boarding. The remainder of the front is covered with small-meshed wire netting. A

the front, at either side of the door, so that they may be used for inside or outside feeding.

The best floor to use in such a house is a natural one. This should be built up 3 in. or 4 in. above the surrounding ground, so as to ensure proper drainage. We have always found the best litter to be clover hay chaff, but oat straw chaff, oat straw, or dry leaves may be used. This litter should be laid to a depth of four or five inches. A suitable drinking fountain and small hoppers for grit, vegetable charcoal, and granulated meat complete the fittings.

Such a house is automatically ventilated. Owing to its structure the impure air from the

birds, being warm, rises, passes along the slope of the roof and out under the shutter. Pure air enters above the boarded half of the front, and, being cold, sinks, passes to the back of the house, then rises to take the place of the air that has been used by the birds. In this way only sufficient air enters to make good that which has been inhaled and exhaled by the inmates. It is impossible for a draught to arise in such a house.

It may not be possible to purchase a house from any of the recognised makers exactly similar to the one described, but many of them are the same as far as essentials go. A smallholder is safe to select a type of open-fronted house from such manufacturers as Boulton and Paul, Ltd., Robert Miller, Spratt's Patent, Wm. Tamlin, Brown and Lilly, Ltd., A. W. Gamage, Ltd., and Wm. H. Cook, Ltd. We have had practical experience of houses supplied by these firms, and have found them excellent in results. Wire netting, stakes, gates, troughs, and drinking fountains can also be obtained from the same makers, as also from the Cyphers Incubator Company.

ERRORS IN CHICK-FEEDING.

THE science of feeding is very little understood. It is not a question of chemistry so much as digestibility, and the last-named is essentially practical. *Farm Poultry* makes the following recommendations:

"There is nothing mysterious, complicated, or difficult about the proper feeding of young chicks, and yet most beginners have a great deal of trouble with them. So before discussing a few of the good methods of feeding let us have a statement of some of the more common errors in feeding.

"1. When soft food is used, often too much of it is used. Too many meals of soft food are given, and not enough hard grain.

"People either do not know or do not appreciate the fact that the chick, unlike the young of mammals and of pigeons, has digestive organs that will take just the same kind of food the adult fowls take.

"The old-fashioned way of feeding chicks was to give them corn meal dough or merely wetted corn meal three, four, or five times a day. Some chicks lived and grew on this feeding because they had good range and exercise and plenty of vegetable food and insects, but they did not then and do not now make the growth on such feeding that they do when fed a more appropriate ration.

"2. Too concentrated foods are used, especially meals—corn meal and oat meal and hard-boiled eggs.

"Corn (Indian) meal may be used alone, if baked in a johnny cake, with good results; but raw or only partly cooked corn meal alone is too likely to be hard to digest.

"Oat meal and various oat preparations if fed heavily have much the same effects as corn meal. One of the surprising things about opinions of feeding chickens is the persistence with which some authori-

ties cling to the idea that oats are an ideal and very complete food, and oat meal the most desirable article for feeding young chicks; when the fact is that chicks do not like it, and the sentiment in favour of it is traditional, and not based on modern experience at all.

"Oat meal and corn meal mixed together, and with bran, make a good food for chicks. The proportion of the meals to bran may be slightly greater for chicks than for fowls, because the growing chick can more readily utilise an excess of nutritious matter than the matured fowl can, but the difference in this respect in rations should be slight.

"Hard-boiled eggs are often fed very heavily—especially if fertility of eggs is poor—and when combined, as they too often are, with a ration which without them would be too concentrated, they are likely to aggravate any digestive disorders that develop.

"3. Animal and vegetable foods are not provided as they should be.

"Many poultry-keepers who are no longer amateurs are like most novices in being afraid to feed meat meals and scraps to young chickens. There certainly is greater risk in feeding them an article of poor quality, but a good grade of meat scrap or meal may be fed quite as freely as to older fowls, though of course, if used in a mash or cake that is fed several times a day to the chicks where the mash for fowls is fed but once, the percentage of meat in the mash must be reduced or the chicks are fed more meat proportionately than old fowls.

"In supplying green food to chicks the great majority of novices give it very irregularly, and rarely in sufficient quantity.

"The three points stated and explained above are, I believe, the most serious errors in the feeding of chicks. When these are avoided the other faults in feeding may not show conspicuously poor results."

SUMMER MANAGEMENT.

By FRED. W. PARTON (*The University, Leeds*).

THE hatching season of the present year has to all intents and purposes finished. The demand for sittings of eggs and for day-old chickens—except in a few isolated cases—has ended. The poultry-keeper, unless he specialises in production of milk chickens, has nothing to dispose of but the domestic egg. These, however, should be plentiful during the coming month since incubators are idle and broody hens are not indulged; and as the prices of eggs at present are remunerative, a fair return from the produce may be expected. The chief work, however, from now onwards is to so manage the poultry, both old and young, that they will be in the best condition when the time arrives for whatever specific purpose they are intended. Proper management now means more eggs in winter from the laying pullets. Care of the breeding stock that have to be used again next spring will bring them up to the "scratch" in as good condition as they were the previous year. Attention to the February and March hatched ducklings will have them in breeding condition in the late autumn and early winter, so that ducklings may be ready for next spring

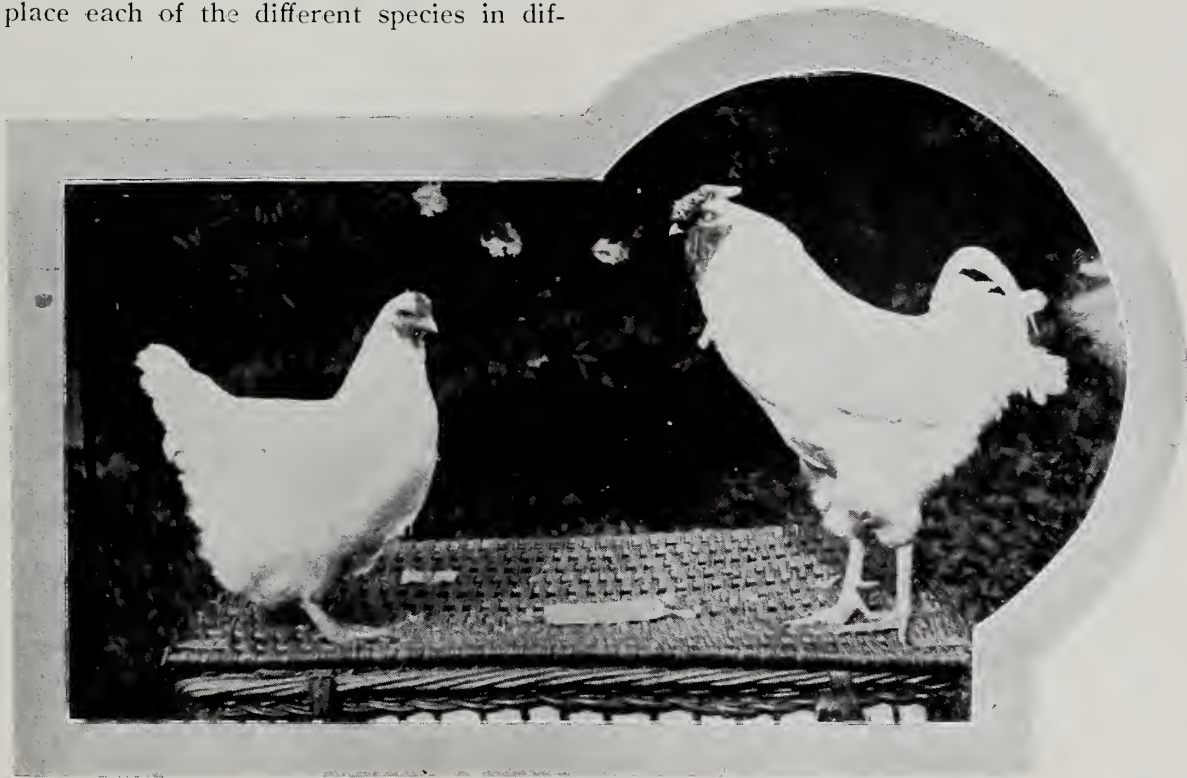
markets. Turkeys and geese, by judicious management, will be in the condition that is necessary if they are to realise the best prices at Christmas. As a matter of fact, there is no branch taken up by the poultry-keeper, however insignificant it may appear, but what will be vastly improved by proper management during the summer months.

It is quite a common thing to see on many farms all the feathered members running together—old hens, chickens of various ages, geese, ducks, and turkeys. This is distinctly bad management, since what may be ideal conditions for, say, ducks may be quite the reverse for the hens. Not only are all the different species allowed to intermingle, but all ages and sizes go to make up the crowd. Leghorns and Plymouth Rocks will thrive well and give satisfactory returns on a heavy, damp soil; Dorkings, Langshans, and Minorcas would not give of their best under the same conditions. Of course it is not suggested that a different quality of soil can be provided for each breed of fowl that is kept on the farm; at the same time, it would not be a difficult task, or make a great amount of extra labour, to place each of the different species in dif-

ferent parts of the farm. Instead of which all these various breeds will occupy the same place, usually in the stackyard and immediately round the farm buildings. They are all fed together, and the more voracious ducks and geese feed at the expense of the others, while the aggressive guineafowl—when they are included in the flock—drive away the younger stock. If they were located apart all this trouble and annoyance would be obviated. The work of feeding would occupy longer time under these conditions, but were a trial given to this method results would fully justify its continuance. Not only are they all allowed to run together, but what is infinitely worse is the system of housing them together; for instance, ducks sleeping on the floor among the dropping from the

birds that roost is in itself most objectionable. In addition to this objection, the question of overcrowding is a very serious one, and the tendency to err in this direction must be strenuously avoided if the best results are to be achieved.

Probably the most dire results of keeping all classes of fowls together are found in cases where chickens are living on the same ground as that upon which the older fowls congregate. Their growth is considerably retarded, due to their not getting sufficient food, and what they do obtain is not of the right kind. The observant poultry-keeper will very soon see the difference in growth between the chickens that have a piece of sweet ground to themselves and those that are compelled to remain with older and mixed stock. The weakly ones die, and those that are strong enough to survive never develop into good, robust birds. It is, therefore, absolutely essential for chickens to be kept apart from the adult stock during their growing days. Especially does this apply to their sleeping quarters; chickens passing the night among such in-



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ONE OF THE MOST POPULAR OF ALL VARIETIES—THE WHITE WYANDOTTE.

ferent parts of the farm. Instead of which all these various breeds will occupy the same place, usually in the stackyard and immediately round the farm buildings. They are all fed together, and the more voracious ducks and geese feed at the expense of the others, while the aggressive guineafowl—when they are included in the flock—drive away the younger stock. If they were located apart all this trouble and annoyance would be obviated. The work of feeding would occupy longer time under these conditions, but were a trial given to this method results would fully justify its continuance. Not only are they all allowed to run together, but what is infinitely worse is the system of housing them together; for instance, ducks sleeping on the floor among the dropping from the

sanitary conditions as must exist where they all huddle together in a house where the oxygen is exhausted are quite likely to cause an epidemic.

The present year has been a very favourable one for the rearing of chickens, and their growth, in the majority of poultry yards, bears witness to this fact. This growth and forward condition must, however, be maintained, and unless they receive proper attention during the hot months it will be a difficult matter. The great secret of success is to keep them growing, and to this end a continual change on to fresh ground is of the greatest help; therefore advantage should be taken of every available position. At this period of the year, when chickens are so numerous, the land is usually stocked to its fullest capacity; thus, the pro-

viding for a change of run is not always an easy matter. A great deal may be done, however, to make it less difficult, and that is by "culling." Culling should commence from the beginning, and immediately chickens show signs of any undesired characteristics they should be removed for the ultimate prosperity of the more perfect specimens of their respective breed. It is frequently argued by the utilitarian that there are no faulty specimens among their class of fowls, unless, of course, they are actual cripples, and that a defect in colour of legs, or a rose-comb where it ought to be single, or vice versa, does not matter from their standpoint. This, however, is a mistake, and the sooner it is grasped by the utility man the better will be the appearance of his stock, and probably greater fecundity will follow the observance of type, which must, or ought to be, studiously kept in view. Rigid culling should take place as soon as the birds reach an age when it can be definitely foretold whether they are worthy of a place among the flock; by so doing greater opportunities are offered for the necessary change of positions. The objection sometimes advanced why chickens should not be scattered about the fields is that the provision of shelter is impossible. It may certainly be somewhat more difficult to provide, but not impossible. Temporary shelters can be erected which may be portable, so that they can accompany the removal of the chicken-house from time to time. This is frequently done, but the shelter is constructed on wrong lines, in that it is not sufficiently high, say about ten or twelve inches, and is closed up at three sides. This will, of course, offer shade from the burning sun's rays; but underneath it is insufferably hot, and the chickens pant for air, as there can be no through current owing to one side only being open. The shelter should be made so that there is plenty of space between the chickens and the top of the erection, and in addition to this it should be so arranged that there is a through current of air.

Chinese Eggs in Canada.

The Canadian Pacific Railway headquarters in Montreal have been notified that the steamship Asia, bound from China, has arrived at Vancouver, containing 3,500,000 Chinese eggs. These are in the shell and not in barrels as heretofore, and are consigned to different parts of Canada and the United States. This is the largest shipment of eggs in the shell (says the *Canadian Mail*) that has been received from China, and it is expected that from now on the price of eggs on this continent will be materially affected by the crop laid by the Chinese fowl. So far, eggs have been shipped broken in barrels, but the shipment of eggs unbroken in the shell is a comparatively new departure.

Fine for Adulterated Eggs.

The Consolidated Egg Yolk Co., of Philadelphia, Pa., recently shipped a quantity of its product in a frozen condition into New York State. A sample examined by the U.S. Bureau of Chemistry was found to contain three embryos, a piece of mould, and to have a sour odour. For these reasons it was charged that the product was "adulterated" within the meaning of the pure food laws. The Consolidated Egg Yolk Co. was fined 200 dollars and costs. —*Farm Poultry*.

DISINFECTANTS & DISINFECTION IN RELATION TO POULTRY HUSBANDRY.

By GEO. EDWARD GAGE

(of the Massachusetts Agricultural College).

INASMUCH as a great many deaths occur yearly from infectious diseases among poultry, it is of considerable interest to study the various means by which some of the bacterial or animal parasitic diseases may be prevented. Therefore, a discussion of the different ways in which the active factors concerned in the spread of disease among domestic birds may be captured and destroyed is a subject of importance to every poultry husbandman.

Disinfection is the term applied to any process by which the infectious properties of anything are removed or destroyed, and a disinfectant is any agent or factor by which this process may be brought about. Disinfection may be either partial or complete, but the term is usually applied only when the process, whatever it may be, is completely effective.

The parasites and bacteria which cause the parasitic and infectious bacterial diseases among poultry can only be transmitted from bird to bird either by direct contact, as with lice and mites, through the mouth, the nasal passages or through some abrasion of the skin. An important factor favourable for bacteria or animal parasites to further infect or infest depends on their condition when they leave the body of a bird and also upon the conditions of the poultry houses and yards into which they are introduced when leaving the diseased birds and remain until they find their next resting-place in the bodies of other individuals.

It is obvious that if a poultry-house is filthy, if the dropping-boards are strewn with collections of droppings, an ideal environment is afforded for the development of infectious disease germs. Such conditions offer excellent resting-places for poultry parasites and infectious disease germs during the interval which elapses between the time when the germs leave the body of the sick birds and the time when they enter other birds. During this interval there should be some method found by which these bacteria and animal parasites could be killed, then the progress of the disease would be effectually ended. Therefore, according to these statements, the process of disinfection is a determined effort to destroy the causative factors of disease, while temporarily absent from the body of the bird, which is their natural habitat.

Unfortunately, this process of killing bacteria is not as easy as it first appears. Since all these bacteria and most of the disease-producing parasites of birds are invisible, the methods of attack must be uncertain. The first thing to do under such circumstances is to fix upon the surroundings or environment in which sick birds are confined and proceed to kill the germs or parasites lurking about in any such environment.

Since the time of Dr. Robert Koch's fundamental studies upon chemical disinfectants, the number of such chemical compounds has enormously increased, and now embraces chemical agents of the most varied compositions.

The efficiency of a disinfectant agent is not alone dependent upon the nature and composition of the substance itself, but there are a great many other

features which must be taken into consideration when stating whether it is a good or a poor disinfectant. A few factors should be considered, such as the temperature prevailing during its application, the structure of the disease-germ or parasites in question, and the time of exposure to the destructive poison.

In the matter of disinfection there are several methods open to the poultryman. He may make his own disinfectant, or he may purchase a patented disinfectant such as Hyco, Zenolium, Carbolium, or use formaldehyde or carbolic acid.

The various agents used for the destruction of bacteria and parasites of infectious poultry diseases may be divided into two groups—heat in its various forms and chemicals. By far the most generally used about a poultry plant are those of a chemical nature, such as corrosive sublimate, carbolic acid and coal tar products, strong mineral acids, formaldehyde, &c.

Fahr., and a better disinfection will be obtained if the temperature is higher. Sprinkle boiling water on the floor, or, if there is no floor in the poultry-house, place a kettle of boiling water in the house to create a moist atmosphere. Potassium permanganate is spread evenly over the bottom of the dish and then the formaldehyde is poured on quickly. This is purchased as a 40 per cent. solution, and should be used as purchased. Twenty-three ounces of the permanganate should be used and three pints of formaldehyde to each 1,000 cubic feet of space. One should leave and close the house at once and allow it to remain closed for four to six hours, or longer; then air thoroughly.

The foregoing disinfectant and method of disinfection for houses may be used when conditions are ideal. During the writer's experience in investigating the diseases of domestic birds, he has found that for all general disinfection around the poultry plant the



THE POULTRY MARKET AT HOUDAN.

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These, by producing chemical decompositions upon or within the cells of the organised infectious elements, so alter the chemical compositions of the bacteria or parasites as to destroy their vital activity.

There is probably no more effective disinfectant than formaldehyde. Wherever the poultry-house is constructed so that doors and windows may be tightly closed this may be used. It cannot be used in open-air houses or loosely boarded structures. The formaldehyde gas method is well adapted to disinfecting and fumigating feed rooms, incubator cellars, brooder-houses and all houses which can be readily made airtight. Use a metal or earthen retainer for a generator, having it of sufficient size so that the liquid will not spatter or boil over on to the floor. Remove all birds from the house before starting the disinfection. The temperature of the room should not be below 50deg.

cheapest and most efficient disinfectants are the coal tar products. These coal tar preparations, either alone or combined with carbolic acid in 4 per cent. solution, have very strong disinfecting properties. They are the bases of most of the efficient patented disinfectants on the market. They are usually spoken of as cresols or creosols, and a 3 per cent. solution of any of them usually affords a very perfect disinfecting medium. They have one great advantage besides their potencies, in that they are not materially affected or interfered with by the presence of albuminous materials. In cases in which birds are affected with "roup" the nasal and mouth secretions may be distributed about the litter and on the dropping-boards. This mucus material contains considerable albumin. If carbolic acid is used, the strength of the disinfectant would be partly used up in combining with this albuminous

matter, so that the strength remaining for disinfection is diminished, and the result is not as good as it otherwise would be. The coal tar products are not so interfered with, and the solution acts in full strength upon the infectious bacteria and animal parasites.

Cresols do not mix well with water, and in order to make a dilute solution it is necessary first to incorporate the cresol with some substance like soap, which will mix with water and will thus carry the cresol over into a mixture. Cresol is corrosive and should be handled with great care, and pure cresol should not be allowed to come in contact with the skin. In purchasing this article for poultry-house disinfection, one should order "commercial cresol." The following formula has been used on several occasions by the writer and has been found to be very efficient when used with a spray pump. Measure out 3 1-5 quarts of raw linseed oil in a 4 to 5 gallon stone crock; then weigh out in a dish 1lb. 6oz. of commercial lye or "Babbit's potash." Dissolve the lye in as little water as possible. Start with one-half pint of water, and if this will not dissolve all the lye add more water slowly. This should stand until the solution is cold and the lye completely dissolved. This process should take at least three hours. The cold lye solution should be added to the linseed oil, stirring constantly. This process should take about five minutes. After the lye is added continue to stir the mixture until it has a smooth appearance of liquid soap. While the soap is in the liquid state, and before it has had a chance to harden, add with constant stirring 8½ quarts commercial cresol. The cresol will blend perfectly with the soap solution and make a clear dark brown fluid. The solution thus prepared will mix in any proportion with water and yields a clear solution. This makes an excellent disinfectant used in 3 per cent. solution with water. This forms such a clear solution that it may be used in a spray pump. Incubators and brooders should be thoroughly sprayed inside and out with such a solution and dried in the sun prior to use.

When the diseases of chicks are considered, the importance of disinfection is more evident. The prevalence of such diseases as brooder pneumonia, or Aspergillosis, and white diarrhoea, is enough to establish the fact that incubators should be thoroughly disinfected before eggs are placed in them, and this is also true of the brooders before young chicks are transferred from the incubators. It is a well-known fact that the spores of the mould, *Aspergillus fumigatus*, the causative agent in brooder pneumonia, may live for a considerable time on straw or hay, which may be used for the litter in such brooders.

The writer has found that the transmission of this disease to young chicks may be practically eliminated from such a source if the brooders are thoroughly disinfected by methods described for cresol disinfection, and then disinfect the cut straw or hay to be used for brooder litter. This may be accomplished by placing the cut hay or straw in burlap bags, tying and lowering into a water-tight barrel filled with a little more than one-half full of a 3 to 5 per cent. solution of cresol mixture. Such patent disinfectants as Hyco, Zenolium, and Carbolineum have given very satisfactory results. After the straw or hay has been thoroughly soaked with the disinfectant, by the use of a small rope and pulley attached to the studding of the cellar, it may

be raised and the excess of disinfectant drained back into the barrel. When this is accomplished it should be put in the sun to dry, and then it is ready to be put into the brooders. It is now disinfected and rendered free from parasites, spores of *Aspergillus fumigatus*, and the germs of other infectious chick diseases. This method of disinfecting cut hay and straw has been used with success at the Maryland Agricultural Experiment Station poultry plant for some time.

One of the most sure and rapid methods by which infectious poultry diseases of all kinds may be transmitted is by means of the common drinking fountain. The fact that the drinking fountain is always open to some form of contamination proves the advisability of adding, at times when disease is prevalent, some substance which shall act as a harmless antiseptic. Potassium permanganate has been used, and reports from different parts of the country indicate success. This is very cheap, and since it is a substance which interferes or retards the growth of bacteria without actually destroying them, it is an antiseptic, and if taken into the intestines of a bird may act as an intestinal antiseptic and aid in establishing normal conditions in diseases by inhibiting the growth and multiplication of the disease-producing micro-organisms along the intestinal walls and in the intestinal contents.

Potassium permanganate may be used by adding four teaspoonfuls of the crystals to a quart of water. This forms a stock solution which is dark purple red in colour, and should be added to the drinking water until it is pink in colour. Diseases of poultry transmitted through the water supply are frequent, and if some antiseptic is used much will be accomplished in the way of prevention.

Sunlight is a very powerful disinfectant. Very few disease-producing bacteria are able to withstand the direct action of sunlight for more than two or three hours.

In the case of land infestation with parasites, there is no better method of disinfection than to plough the land and dress with lime. Thus the parasites present are submitted to the combined action of the disinfectant lime and the direct action of the sun-rays. Such a method as the application of kerosene and burning over the upturned surfaces of the soil are said to yield satisfactory results in cases of parasitic land infection.

Any scheme of disinfection employed for rendering poultry premises free from infectious poultry diseases is no stronger than its weakest point. If a poultryman thoroughly disinfects everything about the premises and then allows a sick bird to remain among the healthy ones he is simply leaving among the healthy flock a source of infection.

The Boys' Share in Poultry-Keeping.

Prof. A. A. Brigham says: "One of the best plans is to take the boy into partnership with yourself. It will be fine for both the 'old boy' and the young one. You'll be the leader at first, but will soon find that a father has to be active if he will keep up with a wide-awake boy, who has really become interested in pure-bred poultry of the right kind."

POULTRY-FARMING AS A BUSINESS.

"Circumstances have arisen which make it desirable for me to live in the country, and I intend starting a Poultry Farm, having been successful as a breeder in a small way. I have a modest capital, but should want the business to yield a living profit. Can you advise me whether such a project has a reasonable chance of success for one who is not afraid of work and has had business experience?"

By EDWARD BROWN, F.L.S.

[No article of recent years has aroused so much interest as the one we print below. It appeared in the ILLUSTRATED POULTRY RECORD for May, 1909. So great has been the demand for copies of this issue that we now have only about a dozen left. As we are still receiving frequent applications for copies we have decided to reprint it in the present number.—ED., I.P.R.]

THE above is an example of many letters received, though it is by no means representative of a large section of queries which come to hand, in that it recognises that certain qualifications are essential factors in the attainment of success. In numerous cases it is evident that the writers have neither business aptitude nor experience, imagining that success is not dependent upon qualifications requisite in every other branch of agriculture, but that it can be achieved easily and quickly. It may, therefore, be desirable to consider the question thus raised, with a view to showing the many and varied points which must be taken into account in attempting to answer such a query. By our so doing some readers may feel discouraged, whilst others will be better able to understand what must be provided for. Preferable is it to clearly realise what an enterprise means than to enter upon it blindly.

THE STANDARD OF LIFE.

First and foremost it is essential to know that the standard of life is an important factor, for upon that will largely depend the scope of operations and whether the profit obtained is satisfactory or otherwise. A labourer whose wages are from 15s. to 20s. per week, who does not pay more than 2s. or 3s. in weekly rent for house and garden, and who can make his poultry fit in with other work, would feel that he was on the high road to fortune if he gained £50 to £60 per annum out of his fowls. But he and his family would do the work, there would be no false pride in the selling of the produce, and he would not spend money on appliances more than to a very limited amount. At the other end of the scale is the standard set up by many who want a house to live in, which will give them modern comforts, probably with a good garden, maybe a stable for a pony or motor-car; they have ideas about what work they can and cannot do, and would be unwilling to sell their own produce. Hence it will be seen that in their case expenditure is on a higher plane, that cost of production is greater, and that, therefore, the overturn must be correspondingly increased. It is not too much to say that many failures in poultry-farming have been due to the basal and living expenses being on a scale which could not possibly be supported by the amount of business done. A shopkeeper may live modestly but comfortably on the profits of his trade, say, in Islington, but to succeed in Oxford Street he would need

to do ten times the amount of business, simply because his establishment expenses would be greater to that extent. Success in the latter by larger overturn and greater profits might sustain a Bayswater mansion, which the former could never do. So with poultry-keeping. Three hundred laying hens might (I do not say would) maintain life in a four-roomed cottage—a simple life all the time—but would be totally inadequate for an eight-apartment dwelling with its greater comforts and expenses. In poultry-farming, it must be remembered, as Ruskin says, that "the true benefit is to extinguish a want—in living with as few wants as possible."

NOT A FARMER'S QUESTION.

Believing, as I do, that, whilst the great bulk of eggs and poultry must ever be produced by ordinary farmers, what may be termed special poultry farms are essential to the progress of the poultry industry, it may be pointed out that the operations which would yield a satisfactory profit to the former would spell failure to the latter. The farmer has practically no basal expenses. Rent, taxes, labour have to be met whether he keeps a single hen on his place or not. With him it is simply a question of a few special capital outgoings, such as those for stock, houses, and appliances, and for feeding the birds. The cost of production is much less than can ever be the case on special plants, and, moreover, the fowls will help him in his ordinary cultivation by manuring the ground. They will find, too, an important part of their food at no cost to him. Under these conditions the manurial value of fowls is greater than the rental value of the ground occupied by them, and, therefore, rent should not be charged. My contention has ever been that, properly managed, every hen kept by a farmer, whether he has five or five hundred, will return him a living profit over the food cost, varying, of course, with the class of bird kept and its productiveness.

BASAL EXPENDITURE.

Before profits are realisable by the poultry farmer, what are known as establishment charges must be met. The margin beyond, if any, is his remuneration. It is necessary, therefore, at the outset to see what these mean, because by so doing we shall be in a better position to appreciate both the scope of operations and the amount of capital calculated to secure a successful issue. At this point it is desirable to state that a common mistake is to charge rent of dwelling and, in some cases, household expenses against the poultry farm. That ought never to be, as these are personal charges. True it is that the house is essential to enable anyone to carry on his work, but the business and the cost of living ought to be kept distinct. A bank clerk with £300 per annum does not say that it costs him £250 to live, and that

therefore he only makes £50 each year. A merchant or manufacturer who earns £1,000 per annum keeps his business finance distinct from his household expenses. Both pay income-tax on the actual amount earned, and rightly so. If their income is unequal to their standard of life, the blame is in the last-named, which must be reduced accordingly or other sources of income secured. The same principle should be applied to poultry-farming. Hence, if a house and ten acres of land were rented at £40 per annum, that sum should not be charged to the business end, but probably one-third of it, according to the value of the house itself.

Taking such an occupation as that just named, we may see how it works out. One-third of £40, with rates and taxes in addition, would mean that this item would total at least £18 per annum. To cultivate ten acres some labour would be required, varying in

I have known the owner of twenty birds hire a horse and cart to help him in his operations!

PRODUCTION RETURNS.

Looking at the question first from the standpoint of production for market, it is possible to see what scale of operations will be necessary. It has been proved that a hen kept for egg-laying can be made to yield a gross profit of 5s. per annum over the actual cost of food. But that will only be where the average fecundity is a good one, say 110 to 120 eggs per annum, where feeding is careful and good markets are available, all of which profoundly affect the result. If we take 4s. per annum as a safer estimate, then 300 laying hens must be maintained to provide for the £60 establishment expenses already named. If 600 hens are kept there should be a profit on this item of £60 per annum, but to achieve this more land than ten acres



A BEAUTIFULLY SITUATED POULTRY YARD.

[Copyright.]

accordance with the crops secured. As these should pay for the labour devoted to them, we may take 10s. per week for poultry alone, or £26 in all. The amount of capital is difficult to determine, but, generally speaking, £15 per acre should be enough, if portable or colony houses are used and wire netting is avoided except for breeding-pens. Thus the interest to be charged will be £7 10s. per annum. These items give us a total of £51 10s., and if we allow £8 10s. for sundry establishment charges, we have £60 to be earned before the owner can look for any profit for himself. In some instances this might be reduced, but it is a fair basis upon which to work, and it will need strict economy to be kept down to that point.

should be secured. That need not, however, influence the result, as the rent of any additional land should be more than met by the crops taken therefrom. More than 600 hens would involve additional capital for houses, &c., and for labour, so that the gain would not be on the same ratio.

In some districts it is more profitable to go in for raising table chickens, though that is so for only a few months of the year, whilst the establishment charges continue for the entire twelve months. In our experiments on the College Poultry Farm, Theale, we have proved that a chicken can be reared to twelve or thirteen weeks at a cost (inclusive of egg, hatching and rearing) of 9d. If, with the maintenance of stock

birds, we put it at 1s., that will be safe. Such birds can be sold for eight months of the year at from 2s. to 3s. 6d. each, and we may take 2s. 6d. as an average—provided, of course, that they are of suitable breeds—leaving a gross profit of 1s. 6d. each. Thus to meet the £60 referred to above 800 chickens must be bred and sold. With the space and labour involved in the sum named, without any attempt at fattening, 2,000 might be raised, in which case a profit to the owner of £90 per annum might be obtained. Beyond 2,000, more land, more labour, more capital would be needed, reducing *pro rata* the additional gain. Of course in many instances a combination of the two branches would give better results.

PRODUCTION FOR MARKET NOT SUFFICIENT.

What has been stated above indicates at once why so many ventures have failed—namely, because they were on too limited a scale to yield the margin of profit required by their owners beyond establishment expenses—and why farmers succeed in production for market where specialist plants do not. It also explains the great American plants, where thousands of laying hens are kept. I do not say that we shall never attain success in that direction, but the end is not yet in sight; not, at any rate, so far as the purely marketing trade is concerned, though we are nearer to it than was true a few years ago. After visiting many of the best American plants a few years ago, I came to the conclusion that I would not accept as a present the best American poultry-farm if compelled to run it entirely on market lines. As operations extend expenses increase, as in every other enterprise, and thus the margin of profit is reduced. In brief, it is the farmer who makes money out of egg- and poultry-production for market, not the specialist, who must gain his rewards by increasing his returns not so much by quantity as by enhancement of returns for the same number. Hence poultry farmers are those who make their money as breeders, not as food producers, though they should ever keep that side in view, making it subsidiary, however, to the other. The poultry industry needs the farmer as producer, the specialist as breeder. Both are requisite, and both can obtain adequate and in some cases large rewards. There is room for the small man with limited means, whose labour is his chief capital, and for the man with money, if they will go into the work on commercial lines, but not otherwise.

WHENCE THE PROFIT COMES.

Very few words will show the importance of keeping the breeding stock end in view on specialist plants. Several men and women have not merely made excellent incomes but even fortunes in this way. It is not given to all to be equally successful, but there are many who make an excellent income. There is room for a considerable increase in the number of breeding farms. The business has to be created, but that has been and is being done on all sides. With the advent of small holdings there will be an increasing demand for pure-bred poultry, and the export trade is capable of vast extension, not on fancy but on utility lines. The exhibition side I do not touch upon, as that does not promise to grow in the same ratio, and will either be revolutionised or become a mere matter of sport. Here

are the reasons why special plants take up sale of stock, &c. :

A stock fowl will cost to produce, apart from capital expenditure, original expense of breeders, and advertising, 3s. to 3s. 6d. at six or seven months old, and for killing will not be worth more than 2s. 6d. to 3s. Selected specimens will realise as breeding stock from 5s. to 20s. each, and a few perhaps more. At an average of 7s. 6d. each, the increase is 200 per cent. over the killing value.

Day-old chicks can be produced at a total cost, including packages, of 3s. to 3s. 6d. per dozen, and will sell at from 7s. 6d. to 15s. per dozen, again an increase of 200 per cent.

Eggs for hatching will cost to produce, apart from capital, original stock, and advertising, inclusive of packages, 1s. 6d. to 2s. per dozen, and will sell at from 5s. to 20s. per dozen. In this instance the increase of returns will be from 300 to 500 per cent. over the market value. Thus with all three the gains are substantial, and may be supplemented by an ordinary market trade.

CAPITAL AND RESERVE.

Sufficient capital is a necessity. Apart from houses, it may be taken at £10 per acre. Thus, the more intensive the plant, the greater the capital for buildings that will be required. There is, however, one point in which many fail—namely, provision for living during the formative stage. I have known several promising enterprises fail through lack of such. In all businesses there must be the time of building up when outgoings are greater than returns. With live stock that must ever be so. Enough should be placed on one side for living expenses during a period of two years, by the end of which time operations should be in full swing. If the capital is drained from the first for household expenses, then only one result can be expected—failure, just when success is within grasp. Those who have assured incomes are safe. But such as are not so fortunate will be well advised to secure employment to provide for their maintenance until they feel justified in devoting all their time to the poultry farm. An instance may be cited. A platelayer in a southern county took up poultry-keeping, helped by an able and energetic wife. For five years he lived on his railway earnings, or less, working hard and gradually extending his operations. At the end of the time named he was able to buy a farm, for which he paid £500, and then—but not until then—did he become wholly and entirely a poultry-keeper.

SALIENT FACTS.

Here are some hard facts which should ever be kept in mind by those who think of going in for poultry-farming :

The average value of 1,000 eggs for eating is less than £5.

Five hundred laying hens showing a gross return of 4s. each per annum over the food cost will only yield a profit of £100, from which rent and all establishment charges have to be met.

One thousand chickens for market are worth, say, £125, and will cost to produce £50, so that from the balance of £75 has to be deducted fixed and general expenses before the owner realises any profit.

REARING TURKEYS.

TURKEYS are the most interesting of our domestic varieties of poultry. What is grander in spring than the strut of the turkey cock as he escorts his hens around the stack-yard or paddock? What more quaint and interesting than the brood of youngsters as they stroll along a hedgerow catching flies or searching for grasshoppers in the long meadow grass, constantly uttering their peculiar cry? In autumn we have the flocks of well-grown youngsters wandering in their own majestic style over the stubble fields, gleaning corn and picking up a few stray insects. This is truly a magnificent sight, especially if the number of the flock runs into three figures; and, finally, we come to winter and Christmas, the last, doubtless, the most familiar, and, to some, the grandest stage of all, judging from a line in an old verse, "For a turkey braised, may the Lord be praised." At any rate, it is an undoubted fact that the turkey, dead or alive, is the king of the poultry world, whether he is gracing the farmyard, the poulterer's shop, the show-bench or the dinner-table.

I will not describe the numerous varieties of turkeys or their specific merits. Suffice it to say that the most widely known are the American (or Mammoth Bronze), the Cambridge Bronze, the Norfolk Black, and the Austrian (or White) Turkey, of which the most popular is undoubtedly the Mammoth Bronze, on account of its size and hardiness. But whichever variety is selected, the object in view is invariably the same, and that is to obtain a well-developed, thick-breasted bird. And now, how is this to be obtained?

The stock birds should be settled in their quarters early in the New Year, great care being taken in their selection. First as to age. A turkey in its wild state does not mature till it is two years old, and a gobbler will retain his supremacy in a flock for four or five years. I prefer, all things considered, two-year-old hens and a cock a year or two older, and, for size, to obtain this in the hens if possible; the larger the better, anything from 18lb to 24lb, but bearing in mind that the heavier the hen the less eggs she is likely to lay, especially if the extra pounds are attributable to fat. The cock should weigh about 30lb to 35lb if in fair condition. I carefully avoid a bird of either sex that does not carry plenty of breast, and one that has a prominent nob on the point of breast-bone. Of course, freedom from any trace of disease or deformity is absolutely essential. One cock can be mated with eight to ten hens. Having selected your stock birds, get them settled in their permanent quarters as soon as possible. A large, roomy, but not draughty, open-fronted shed is a good roosting-place, although an ideal position is a tree selected by the birds themselves in a park. But few breeders are able to allow this owing to risk of losing them by thieves, either two or four-legged.

Eggs may be expected early in March, and as the hen is a particularly shy and timid bird, she will wander a long way to find a suitable nesting-place. Convenient places should be made up for her near at home to select from. An old barrel lined with leaves and straw, a thatched hurdle or two placed in odd corners, or a few boughs placed against a wall all make excellent places for her to creep under and lay

her eggs, which number from about thirteen to thirty-five each batch. It is always advisable to collect the eggs as laid, and to hatch the first batch under ordinary hens, breaking the turkey hen of her broodiness as soon as noticed, when she will recommence laying in from ten days to a fortnight. Collect these eggs as previously, but the turkey hen may be allowed to hatch them herself, and as the chicks will not appear much before June, her motherly care will be of great assistance to her brood in chilly autumn.

An ordinary hen will not cover more than nine turkey eggs, so it is advisable to put three hens down at once, and then at hatching time you should have two good broods. A turkey hen will cover from fifteen to twenty-five eggs. A quiet place, not too light, should be selected for the hens to sit in. Great care must be taken that the nests are carefully made and kept clean and free from vermin, that the hens have plenty of room, and that they, too, are kept free from vermin. The period of incubation is twenty-eight days. During hatching time the hen should be disturbed as little as possible, for fear of her trampling on the chicks, which are exceedingly weak and feeble when first hatched. Remove the empty shells and allow the hen to come off and feed only if restless. It is best to try and arrange to give her a good feed before the first chick is hatched. Turkey chicks hatch very rapidly and cleanly if the eggs are fresh, a whole hatch coming off in five or six hours. The newly-hatched chicks should be left in the nest thirty-six hours, after which time they should be quite strong. Remove hen and chicks to a large, dry, well-ventilated coop with wire-covered run in front and board floor covered with dry chaff or peat moss if early in the season. The coop and run should be placed in a sheltered corner, where plenty of good grass and herbage are obtainable.

The chicks' first food should consist of hard-boiled egg chopped fine and dried off with ground oats or crammings. This food may be given for the first four or five days, varying it with an occasional feed of biscuit-meal and a last feed at night of a reliable dry chick food. After the first few days the egg may be replaced by fine pollard, scalded and dried off with ground oats, or boiled rice dried off with crammings, these foods to be continued for the first three weeks. The chicks must be fed regularly and sparingly every two hours, and although it may not be apparent just now, overfeeding, mind, is fatal, and special attention must also be paid to the regular supply of water, flint grit, and oyster shell. After three weeks the interval between the feeds may be increased to three hours; green food in the form of chopped onions or dandelions may be added to the soft food, which may be mixed with skimmed or new milk. Cracked wheat or groats may replace the dry chick food. Vary the foods as much as possible, but do not make any sudden changes. Move the coop and run on to fresh ground daily, and when space and weather will permit allow the hen to roam about with her chicks after the first week. The hen and chicks should be periodically examined to see that they are all quite free from vermin, which are the cause of many fatalities.

The system of feeding should be continued till the chicks have "shot the red," which they do when from eight to ten weeks old. About this time the hen will be thinking of leaving her rapidly-growing chicks,

so they should all be moved to a nice dry, well-ventilated, but warm house, about 8ft. by 6ft. and 6ft. high at ridge, and mounted on wheels. No perches should be allowed, the floor should be covered with clean dry wheat straw, and here the chicks should be warm enough when the hen forsakes them. They will now only require four feeds a day. Do not drop off the onions, which give tone to the system. Their evening food may now be whole wheat or good heavy white oats, and as soon as a field of corn is cut and carted, the turkeys should be moved on to the stubbles without delay, and the house moved daily, when they will only require two and probably one feed a day, and their growth will be amazing. Keep them on the stubble as long as there is any corn for them to pick up, or until the ground gets wet and cold; they must then be moved to their winter quarters, and nothing beats a good barn.

DIFFICULTIES IN REARING CHICKENS.

THE hatching season is rapidly drawing to a close, and consequently chickens are very numerous, ranging in age from the downy ball of a day old to the well-grown chicken of three or four months. Work is constant and arduous, and neglect of any one of the many little details may have after-effects which will minimise success.

Many and various are the difficulties that present themselves to the poultry-keeper during the rearing season. One of the worst to face, and one of the most disastrous if the difficulty is not successfully combated, is that of finding adequate accommodation for the young ones. To do so is often a severe tax upon the ingenuity of the owner, since at no other time of the year has he so many birds of one kind or another to accommodate. The time is not yet for the disposal of the two-year-old hens; the breeding-pens are not broken up; and, in addition to large numbers of chickens, there is the general laying flock. Overcrowding in every direction must be discouraged—there is no greater evil to be fought against—and a word of warning at the present time may be the means of preventing some of the inevitable troubles that follow inattention to this important item in the management of chickens. Many of them have now attained an age when it is imperative that they shall have their sleeping quarters increased. This may mean a certain amount of trouble, and not unlikely some expense may attend this thinning out; yet the extra work, and possible outlay in more appliances, will soon repay itself in the enhanced value of the stock.

Whatever plan is adopted they must have plenty of space to allow of their full and proper development. If too many chickens are closely huddled together the oxygen soon becomes exhausted, and thus they are compelled to breathe the impure air over and over again. There are a great number of diseases that owe their origin to overcrowding. Many of these diseases are not immediately apparent, but the seeds are sown which ultimately assert themselves. If the cause of tuberculosis in hens were traced, not infrequently it would be found that inattention to this important matter was responsible for the trouble. So far as is known tuberculosis descends from one generation to

another, and as the disease is not always apparent, birds so affected may be bred from. Hence the evils of overcrowding chickens have a far-reaching effect.

The remedy that immediately suggests itself is, Why not buy more appliances and thus obviate the danger? This advice is very easy to give, but not always easy to follow, since with the majority of industrial poultry-keepers money must be considered. If a man wishes to develop, more appliances must be obtained that are commensurate with the extent of his developments, but very often people develop so far as rearing more chickens is concerned, but do not develop in any other direction. If a man has space and accommodation for only a certain number of chickens, to attempt to rear more is a very foolish proceeding. The golden rule in chicken rearing is never to breed more than can be properly accommodated or than the land can safely carry.

To keep chickens growing is very often a somewhat difficult matter, especially when the season is drawing to a close. This slowness is often the result of batch after batch of chickens being put upon the same piece of ground, from which the freshness is impaired by long occupancy. It is a wise proceeding to keep a section of the land for the later chickens. Even if both early and late hatched chickens have absolutely sweet and clean ground, it will invariably be found that the former are infinitely more rapid in their growth than those hatched six or seven weeks later. The late ones have the handicap of being placed upon ground that has been previously used; then, indeed, their growth will be slow and their condition poor. Whenever practicable the land should be divided up so that the latter have a better start.

The Southdown Hunt Again.

A poultry farmer, who has a shop in Lewes and a small farm somewhere near it, asks me to remonstrate with the committee of the Southdown Hunt. He certainly seems to have a strong case. He complains that in February of this year foxes destroyed twenty of his best chickens, which he was preserving for Easter, worth to him at least 4s. each; also an Aylesbury duck, which was particularly valuable to him, as he was only keeping one duck and one drake for his year's stock. He adds that his statement will be corroborated by the police. He sent in to the Southdown Hunt a bill for twenty fowls at 3s. and one duck at 3s. 6d., putting his loss therefore very low, but the poultry committee have refused to settle the claim. Another bill for fourteen fowls killed in November has also been rejected. I have reason to know that some members of the Hunt sympathise with this unfortunate poulterer, and the decision of the committee is certainly not in the interests of fox-hunting generally. The man states that his poultry were kept always locked up, but he finds that the foxes will wrench away the boards and get at the birds. He adds that there is a den not far from his farm where foxes breed almost every year. As will be seen from his circumstances, he is a man dependent upon his poultry for his living. If poultry-breeders are not adequately compensated for their losses under these circumstances, their only remedy seems to be to go for the foxes—or to vote for Mr. Lloyd George and a free countryside.—*Truth.*

MACDONALD COLLEGE BULLETIN ISSUED TO GIRLS' & BOYS' CLUBS.

FOR some months past the Poultry Department of the Macdonald College, Quebec, has issued a monthly bulletin which is specially prepared for distribution at Girls' and Boys' Clubs. We have received a copy of No. 7, dealing with the questions of brooding and feeding chickens, by Mr. M. A. Jull, and since the information included under the latter heading is equally as suitable for grown-up poultry-keepers as for those who are younger, we make the following quotation:—

Feeding.

"When the rapid rate of growth in chicks is considered it will be easily understood how important is the question of foods and methods of feeding.

"Chicks require only a small quantity of food at one time, but should be fed frequently. It is advisable not to feed the chicks until they are about twenty-four hours old—that is, twenty-four hours after having been put in the brooder or for the same length of time after having hatched under a hen. Nature provides for the sustenance of the chick until it is able to obtain food by its own efforts. At the time of hatching the yolk of the egg usually has not been completely absorbed into the chick's digestive system. This yolk sac supplies the chick with food for the first few hours, and if it is fed too soon it may not be able to digest both the food given and the contents of the yolk sac. If the chick is fed too soon there is a tendency for the material present in the yolk sac to remain unabsorbed, in which case the health of the chick is affected and death frequently occurs.

"The object in feeding should be to make the chicks take plenty of exercise. Chicks with the mother hen usually get plenty of exercise, but where they are being brooded artificially more care must be exercised in keeping the chicks in good condition.

"Exercise means health, and the feeds should be

given in such a way that the chicks will have to scratch for most of the food they obtain.

Feed Little at a Time, But Feed Often.

"Shortly after the chicks are placed in the brooder they should be given a little sand or some chick grit. This seems to aid them in digesting the contents of the yolk sac as they are absorbed into the system. Fresh water or sour skim milk may be given from the start. Sour milk is an excellent chick food, and it tends to keep the chicks in good health. It should be given regularly.

"The floor of the house should be covered with about two inches of fine litter, such as cut straw or shavings. By scattering the grain in the litter the chicks have to scratch for their food.

"Below are given two methods of feeding chicks, either of which will give good results when properly followed.

"1. For the first few feeds mix about four parts of breadcrumbs with one part of egg. The eggs used for this purpose are the infertile eggs which have been taken from the incubator in the first test. This bread and egg mixture is fed three or four times a day for the first two weeks, and in between each feeding of this mixture the chicks are given a feed of rolled oats.

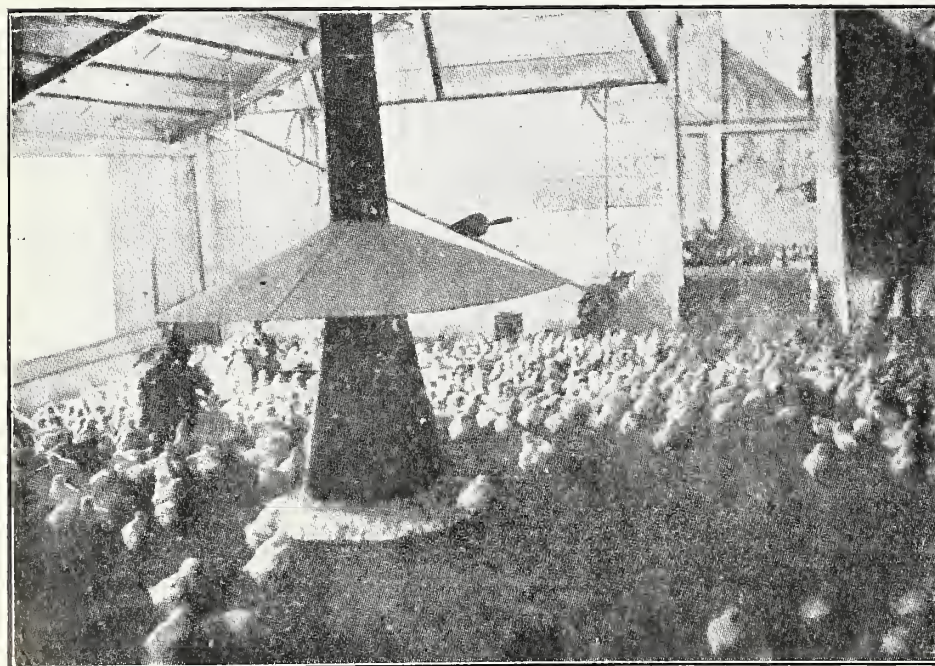
"Green food, such as lettuce or the tops of sprouted oats, is fed every day. When the chicks have access to green grass this is not necessary.

"After the chicks are two weeks old finely cracked wheat and corn are given instead of the bread and egg mixture. Chick grit and fresh water or sour skim milk is always kept before them. After about three weeks the chicks are given a dry mash made up of three parts bran, two parts oatmeal feed, two parts cornmeal, one part middlings, and one-half part beef scraps. As the chicks become older they will take coarse cracked wheat and corn.

"2. From the first the chicks are fed a good commercial chick food or a mixture of finely cracked wheat and corn. This is scattered in the litter three or four times a day and rolled oats are given two or three times daily. Grit and water or sour milk are given as before. After the chicks are two weeks old they are given the same mash as in the first method and the cracked wheat and corn are coarser. While the chicks are confined some form of green food is necessary.

"This method is simpler than the first, and usually gives as good results.

"After the chicks are three or four weeks old, under either method, a wet mash may be given in small troughs. The wet mash is made of the same material as the dry mash. The ground grains are mixed thoroughly and the mixture is moistened with water or with sour skim milk. It should not be fed wet, but just fairly moist, and care should be taken



A STATIONARY OR ROOM BROODER.

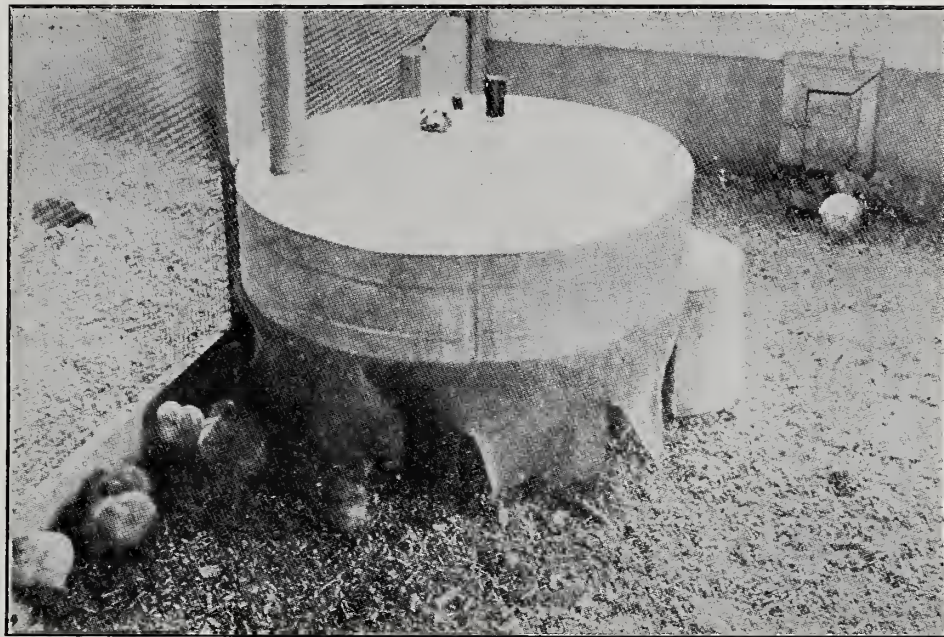
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not to overfeed at any one feeding. Feed a very little at a time.

"When the proper kind and amount of food is properly fed the chick should develop rapidly. If the chicks are brooded successively for two or three weeks there is little danger of losing many of them.

"All brooders and brooding quarters should be thoroughly and regularly disinfected, using a good commercial disinfectant."

does not seem to assist the greater production of eggs during the winter months. In no month has the output from the semi-intensive section been so good as that from the small-house section, and if we compare the results of the individual pens, we find the first three pens in the small-house section with higher scores than the first pen in the semi-intensive section, and the next four pens in the small-house section with a score higher than the second pen in the semi-



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A PORTABLE BROODER OR HOVER FOR 50 CHICKENS.

THE UTILITY POULTRY CLUB. TWELVE MONTHS' LAYING COMPETITION.

THE appearance of the manager's report for the sixth period of four weeks reminds us that this competition has now run nearly half its course, and it is a good moment to take stock of the results achieved and to compare the working of the two systems. The small house and run section consists of thirty-one pens of four birds each, the houses being 12ft. long by 8ft. wide, 6ft. 6in. in height in front, and 5ft. at back, and are divisible in the middle by a partition with a door at each end; an ample grass run is obtainable. Each half-house accommodates two pens, and the floor space is all available for scratching. In the other section the thirty-one pens, which it is of interest and importance to note are of the same breed and entered by the same competitors as those in the other section, are penned in a large house 40ft. long by 20ft. wide, 9ft. high in front, sloping to 5ft. at back. The floor is covered with 6in. of litter, so that the whole floor space, except a portion under the perches, is available for scratching purposes. There is a grass run of an acre, into which the birds are let out in suitable weather.

The competition, which has been financed by the Development Commissioners, has arranged in these two sections to ascertain the respective merits of the two systems, and the results to date go to show that while doubtless there is a saving of labour in keeping a large flock of fowls in the large house, the system

intensive section. The actual figures are 10,465 eggs from the small-house section and 9,208 eggs from the semi-intensive section for the six months.

It is doubtless true that the fewer eggs laid in the latter section is, partly at any rate, due to the colds which were troublesome in this section in the early days of the autumn, and it would be well to suspend judgment as to the respective merits of the two sections until the final figures and full report of Mr. J. N. Leigh, the manager, are available.

To turn to the output for the sixth month (four weeks), we find 2,460 to the credit of the small-house section and 2,347 to the semi-intensive section, but the latter lays claim to the highest pen score of 92 eggs for the twenty-eight days.

The following are the positions and scores of the leading pens:

SMALL-HOUSE SECTION

Position.	Pen No.	Breed.	Total 6th month.		Total 24 weeks.	
			for Eggs.	Value.	for Eggs.	Value.
				s. d.	£ s. d.	
1	7	White Leghorns...	76	6 2	427	2 16 0
2	15	White Wyandottes	91	7 4¼	429	2 13 3
3	29	Buff Rocks ...	74	5 10½	403	2 12 5½
4	27	White Orpingtons	73	5 11½	397	2 11 8

SEMI-INTENSIVE SECTION.

Position.	Pen No.	Breed.	Total 6th month.		Total 24 weeks.	
			for Eggs.	Value.	for Eggs.	Value.
				s. d.	£ s. d.	
1	21	White Wyandottes	82	6 7¾	419	2 12 3¾
2	15	" "	71	5 7¾	388	2 7 6¼
3	8	White Leghorns...	82	6 7½	373	2 6 4½
4	24	Buff Orpingtons...	79	6 4½	355	2 4 10½

TWO PROFITABLE BREEDS OF DUCKS

By F. W. P.

WHILE the duck breeder has not the same number of varieties from which to choose as that offered to the ordinary poultry-keeper, there are breeds that fulfil every purpose for which they are intended. If he is an exhibitor, then he has considerably larger scope, so far as numbers are concerned, than has the utility breeder, since, in addition to the recognised economic breeds, there are many others at his disposal.

The chief utility breeds of ducks are Aylesburys, Pekins, Rouens, and Indian Runners. All of these have their partisans, each of whom declares that his own choice is the best. This term, however, is equally as ambiguous as when it is applied to the ordinary fowls, since it is well known that no one breed of poultry can possibly excel in every economic quality, although it is somewhat difficult to convince the enthusiast that his particular breed is lacking in any respect. The same is equally true of ducks, and each of the above-mentioned breeds has special qualifications of its own. It is, however, with the two white breeds that we are at present concerned.

THE AYLESBURY.

This breed has many great qualities, but the greatest of these is its early maturity and the remarkable rapidity with which it reaches the killing stage, and this at a time when the highest prices are to be obtained. There is probably no other breed or cross that is its equal in this respect, and since the Aylesbury is purely and simply kept for supplying the spring markets, it goes without saying that therein lies its chief economic quality, and the reason why it is so extensively bred in the duck-fattening counties of Buckinghamshire and Bedfordshire. The flesh is white and of excellent quality, and it is placed on the right part of the body—that is, a small amount on the legs and abundance on the breast and sides. This in itself is an important consideration, and one that appeals very strongly when it is displayed for sale, since there is a minimum amount of bone and refuse, and it consequently compares very favourably with other varieties that may be considerably older, in that there is a larger proportion of edible matter than is the case with other breeds. This is, of course, of paramount importance from the producer's standpoint, since ducks are big eaters, and every day a bird is kept alive longer than is absolutely necessary, it reduces very considerably the ultimate profit.

Although the main value of the Aylesbury is its table qualities, yet they are by no means to be disregarded as layers. This is, of course, as with all other classes of poultry, largely a matter of strain, but it is by no means uncommon for ducks of this breed to lay up to eighty eggs in the season. I have heard of over a hundred having been produced, but this is very exceptional. They are fairly hardy, yet they require care, and must be kept under favourable conditions if full advantage is to be secured of all their sterling qualities.

Their distinctive external characteristics are as pronounced as are their economic qualities. There is only one variety—namely, the white. It should be perfectly white in plumage, without any streak of

yellow. The bill is long and tapered, running straight down from the top of the head. The head is large, and the neck is rather long. In body it is deep and straight, with very prominent breast. It is long and flat in the back, the tail runs almost parallel with the back, while the legs are thick, well apart, and orange-coloured.

THE PEKIN.

This breed, which came from China about forty years ago, does not equal the Aylesbury in meat properties, even when it is in the best condition. Not only so, but whereas an Aylesbury should be in prime market condition at nine or ten weeks old, the Pekin requires at least two or three weeks' longer preparation before it reaches the same stage. The Pekin does not lend itself so readily to fattening as does the Aylesbury, nor is the flesh of the same texture of colour, being yellow, and rather inclined to coarseness. In appearance the Pekin looks to be quite the equal of, if not larger than, the Aylesbury. This is accounted for by its profuse feathering. When it is plucked it does not compare at all favourably with its close-feathered rival. It is, therefore, not so suitable for marketing in its first feather, and this should be the main object to strive after. It is in fairly good edible condition soon after it acquires its adult plumage. It is a wonderfully good layer, and it is probably in this direction where lies its advantage over the Aylesbury. It is white in plumage, with just a slight straw tinge running through the feathers, and it is owing to this very slight difference—which is not always apparent—that very frequently it is mistaken for the Aylesbury, and vice versa. It is quite possible that exposure to the sun during the summer months may give this tinge of yellow to the Aylesbury, while the sun has the opposite effect on the Pekin, and has a tendency to whiten the feathers. It is, therefore, quite an easy matter to mistake the two breeds—that is, when it is imagined that the colour of plumage is the only respect in which the two varieties differ. A comparison of their external characteristics will, however, at once show that in appearance they are entirely different, and, knowing this, there should be no difficulty in distinguishing one breed from the other. We have often known of disappointment when an attempt has been made to meet the large demand for spring ducklings by the inferior quality, which, of course, meant smaller prices.

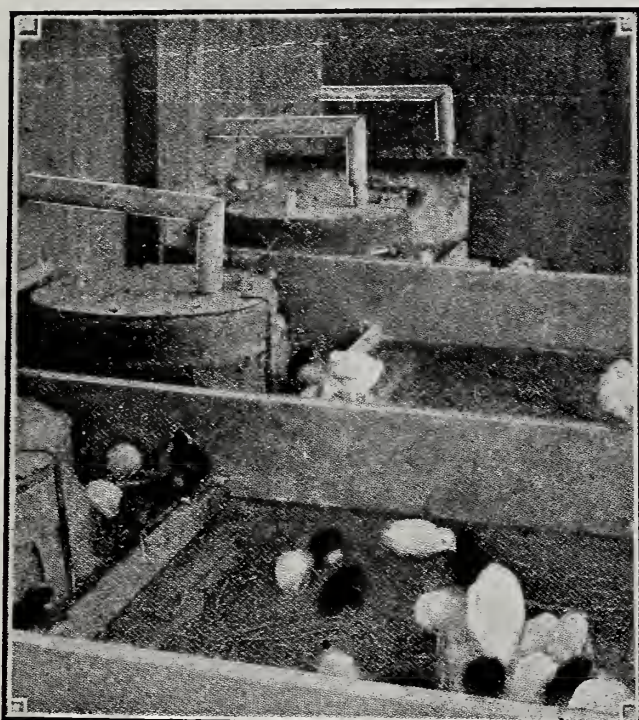
There are several other distinguishing features between the two breeds, of minor importance. In the first place, the heads are quite different in shape; that of the Aylesbury is long and slender, with a gradual slope towards the base of the bill, while the head of the Pekin is shorter and much thicker, and goes abruptly up from the bill, while it is also thick and less pointed. A further difference, and one that cannot well be mistaken, is in the colour; the Aylesbury's bill is of a flesh tinge, and that of the Pekin is deep orange. The legs are the same shade of colour. The shape of the Pekin is upstanding, whereas the Aylesbury's body runs parallel to the ground.

Ban on Fowls.

A storm of indignation has been created at Farnham by the decision of the local authority not to allow the tenants of council cottages to keep fowls.

THE BREEDING-PENS & OLD HENS.

WHEN the last batch of eggs have been put under hens or into the incubator, and the owner has decided to finish hatching for the season, he should turn his attention to the breeding-pens. No more fertile eggs are required either for sale or home use; so why keep the pens intact? The pens should immediately be broken up, by which we mean that the sexes should be separated, an operation that will be beneficial to both. The cockerels that have been used this year will probably be kept for breeding next season, and if they are removed from their mates as soon as all the fertile eggs that are required have been obtained, the cockerels will be in as good condition next spring, when mated with pullets, as they were as yearlings. We say when mated with pullets, since it is inadvisable to mate two-year-old cocks with hens of the same age, unless, of course, some special circumstance should warrant doing so. Furthermore, it is inadvisable to use a male bird for breeding in its third year; therefore all males should be disposed of



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PORTABLE BROODERS ARRANGED IN A PERMANENT HOUSE.

after their second season. If properly cooked, they will be quite good as boilers. A system that is gaining much favour with some of the more enterprising poultry-keepers—and certainly the system is an excellent one—is that of hatching two or three batches of chickens in the autumn, the object of this being that such chickens usually commence to lay the following summer at a time when the older birds are giving up laying with the approach of the annual moult, and the spring-hatched chickens have not attained laying age, consequently there is a great dearth of eggs. It is at this period where the autumn-hatched chickens score. This is all very well so far as it goes, but very frequently we find that to attain this purpose the breeding-pens are kept intact until the autumn. This is, however, a mistake, and will more than counter-

balance the ultimate profit from the autumn chickens. Presuming that his services are not required after the beginning of May, if he is taken away from the hens at once, he may have three or four months' rest before the autumn season commences. He need not again be run with the hens until two or three weeks before it is intended to commence hatching. When the autumn work is over, if he be again removed he will be in excellent condition for the breeding-pen the following spring. The argument is sometimes advanced that in May and June all the available space is stocked to its fullest capacity, so that it is impossible to find a separate run in which to keep the cocks. It is not necessary to house them separately, though damage would undoubtedly result from fighting if a number were kept together; but if each of the cocks is run with a batch of the young cockerels, as the latter are removed from the pullets, after a few days they would live quite amicably together. Whatever plan is adopted, it is imperative that the breeding-pens be disbanded not only for the preservation of the cocks' vigour but for the sake of the hens; they find considerable relief by dispensing with the male birds' attentions after their long and arduous period of laying, and with the approach of the moulting season.

The disposal of the hens on the breaking up of the pens does not present the same difficulties, since, if no other place is available, they may be allowed to remain in the same quarters. Whenever possible, however, a fresh place should be found for them, and especially does this apply to establishments where the breeding-pens are cramped as to size. If the pens are, say, about three hundred square feet for nine or ten fowls, then they may safely be left where they are. Even with this size of run, however, if circumstance permit, much benefit will accrue by putting three or four batches together in a large portable house, apart from the growing stock, not only to the breeding birds, but to the ground itself.

The disposal of the inmates of the breeding-pens is considerably simplified by selling all the old hens whose most profitable age is over. As we have previously stated, at the present time all available space is required for the growing chickens, and too often the young birds are occupying ground that might be more profitably stocked. The disposal of the old hens is very frequently delayed too long. Many have been brooding chickens and are now deserting them, such birds should be got rid of if the owner has no further use for them. It is quite true that between now and the moulting period a fair number of eggs will probably be produced, but if the hens are sold a month or six weeks before they moult they will realise a very much better price, as the demand is much greater than it will be when the year is more advanced and spring chickens are within the reach of the ordinary individual. The prices obtained for old hens is very largely a question of local consideration, and in game preserving districts prices will range from 2s. to 3s. 6d. each, and in some cases gamekeepers will pay as much as 1s. 6d. for the use of the hen, which is eventually returned to the owner in excellent condition for boiling. This is certainly a very generous offer, and one that will amply repay the poultry-keeper, since the hens are removed, which allows of greater scope for the development of the younger birds, and an added profit is realised.

POULTRY COOKERY.

A Picnic Hamper.

HAVING had some experience in the provisioning and packing of these hampers, I should like to offer a few suggestions which may be useful to others who, very wisely, intend to make the most of the summer while it lasts, and who mean to indulge, as often as opportunity permits, in this most healthy and enjoyable form of recreation. The following are a few out of the many items suitable for such an occasion.

MAYONNAISE EGGS.—Boil the requisite number of perfectly fresh eggs until quite hard; then, when cold, carefully remove the shells and cut the eggs in halves lengthwise; take out the yolks and put them into a basin with a seasoning of salt, and bruise them smoothly, moistening them during the process with a small quantity of well-made mayonnaise sauce; then make them up again into their original size and shape, and return them to the whites, putting the latter together again as neatly as possible. Have ready some dainty little cases made of paper or cardboard, and nearly fill them with a finely shredded green salad which has been pleasantly seasoned with the sauce; form a small hollow in the centre of each, into which place one of the eggs; cover the tops with a piece of cardboard or strong white paper; cut to fit, and the eggs are ready for packing.

SMALL CHICKEN AND HAM PIES.—Mince together six ounces of cooked chicken and three ounces of boiled ham, and when sufficiently fine season pleasantly according to taste and just barely moisten with a little good stock. Line out some patty-tins with moderately rich pastry and three-parts fill them with the mince; then cover with lids of the pastry, and press the edges lightly but firmly together; brush the tops over with milk or beaten egg; make a tiny hole in the centre, and bake in a well-heated oven. When sufficiently cooked remove the pies from the tins, but put them back again as soon as they are quite cold, otherwise they are very apt to get broken in the packing.

STUFFED ROLLS.—Perhaps some members of the picnic may be afraid to indulge in the above dainty little pies on account of the pastry; if so, the following will prove an excellent substitute. Procure from the baker some very small rolls generally sold at three or four for a penny, and split them in halves. Scoop out nearly all the crumb and fill them with a mixture of chicken and ham, as directed for the pies described above, or, if preferred, with hard-boiled eggs finely chopped and mixed with a small quantity of mayonnaise sauce.

CHICKEN SALAD.—Cut up the requisite quantity of cooked chicken and boiled ham into Julienne strips and add some fresh cucumber, boiled beetroot, celery,

pickled gherkins, cooked French beans, and the whites of three or four hard-boiled eggs, all cut up in strips like the meat; then add some fresh endive and lettuce torn into small shreds, carefully picked watercress divided into very tiny sprigs, and a seasoning of salt and pepper. Moisten sufficiently with mayonnaise sauce, or any other dressing which may be preferred, mix thoroughly, add the yolks of the eggs cut in halves, and pack in a suitable bowl.

ORANGE CREAM.—Soak the thin yellow rind of three medium-sized oranges in a pint of milk for an hour or two in order to extract the flavour, then strain the milk into a scrupulously clean saucepan and allow it to heat very gradually. When boiling point has been reached pour it over half an ounce of French sheet gelatine which has been soaked in cold water for an hour, and continue stirring until the gelatine is entirely dissolved and the milk nearly cold; then pour it into a damp mould and set it in a cool place to stiffen. Pack the cream in the mould, but take a glass or china dish in the hamper so that it can be turned out for serving.

SMALL BAKED CUSTARDS.—Line out some patty-tins with light, moderately rich pastry rolled out thin, and three-parts fill them with a good uncooked custard made with half a pint of milk, a pinch of salt, two whole eggs and the yolks of four others, and sugar according to taste; a few drops of some flavouring essence can also be added, if approved of. Bake the custards in a well-heated oven until sufficiently cooked, then proceed as directed for the chicken and ham pies.

CHEESE SANDWICHES.—Those who prefer to finish their meal with a savoury will find the following most enjoyable: Put three ounces of good cheese cut in small pieces into a mortar with about an ounce of fresh butter and a small teaspoonful of made mustard and pound it to a smooth paste; spread this on thinly cut slices of brown or white bread, press firmly together and cut into small, neat pieces. Pack very closely and wrap in a serviette, as sandwiches are apt to become very dry if wrapped in paper.

If it is thought advisable to include fruit and drinks of any kind in the picnic menu, the former should be chosen of a firm kind and be packed in several small baskets rather than in one large one; and it is also a good plan to place a thick layer of fresh green leaves over and under the fruit, as that helps to keep it beautifully fresh and also prevents it getting at all crushed. The question of drinks is one which must, of course, be settled according to individual taste, but home-made lemonade is certainly one of the best and most refreshing. This, or any other liquid, should not be carried in bottles, as these are very liable to get broken, but in a "grey hen," when it will be perfectly safe. Tea or coffee made on the spot is sometimes exceedingly nice and most refreshing, but it is often difficult to make it satisfactorily and prevent its acquiring a somewhat smoky flavour, which is not at all enjoyable; besides, it means such a lot of extra packing that the ready-made drinks are generally preferred.

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A WINNING DARK BRAHMA COCK.

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THE POULTRY CLUB.

THE monthly meeting of the Council was held on May 8 at the London Chamber of Commerce, Oxford Court, Cannon Street, London, E.C. Mr. Charles Thellusson occupied the chair, and there were also present Captain Ralph R. Allen, Dr. S. E. Dunkin, and Messrs. William Rice, Albert Smith, A. C. Powell, Walter Buxton, P. H. Bayliss, William Clarke, Harold Corrie, and T. Threlford, hon. sec.

The minutes of the last meeting were read and confirmed.

The following new members were elected :

Recommended by the Cheshire Branch—

Miss Emily Clibram.

Recommended by the Derbyshire Branch—

Mr. William Charles Slack, Countess Cliffe, Buxton.

Recommended by the Middlesex Branch—

Mr. G. C. Sanken, 44, Russell Square, London, W.C.

Recommended by the Surrey Branch—

Miss Dorothy Clarke, The Grange, Leigham Court Road, Streatham, London, S.W.

Mr. W. G. Page, 12, Sidney Road, Waltham Cross.

The following were associated: Cheshire Agricultural Society—Secretary, Mr. Thomas A. Beckett, St. Werburgh Chambers, Chester. Bath Open Show—Hon. Secretaries, Mr. William Dutch and Mr. R. Thyer, The Red House, Bath.

The following shows announced to be held under Club Rules were granted specials: Mid-Cheshire Farmers' Association; Brasted, Sundridge, and District Fanciers' Association; Royal Northern Agricultural Society, Bath Open Show, Kayle Show, and Bristol.

Correspondence.—A letter from the Yorkshire Branch was read, and others letters left in the hands of the secretary to deal with. Kent Branch: A long letter was read from Mr. T. F. Ramsey, and after some discussion Mr. W. Clarke gave notice that at the next meeting of the Council he would move to rescind the resolution passed at the Council meeting held on February 13 last.

County Cups.—Mr. P. H. Bayliss raised the question of qualifications of members competing for these cups, and it was pointed out that this was governed by the rules already made.

A member raised the question as to whether anyone having wins on any of the cups dying and his birds being still exhibited in the same name should these wins be allowed to stand. It was pointed out that the wins were secured and recorded to the exhibitor, and on his decease the wins on the cups ended.

The President to commemorate his year of office decided to offer eighteen ten-guinea cups, to be won outright at some of the leading shows.

The next meeting of the Council will be held on Friday, June 12, at the London Chamber of Commerce, Oxford Court, Cannon Street, London, E.C. Fanciers wishing to become members may send their names to the secretary of the County Branch or to the hon. secretary of the club on or before the 1st prox., and the secretaries of County Branches must send in all matter to appear on the agenda to the hon. secretary not later than the 3rd prox.—T. Threlford, hon. sec., 2, St. Luke's Square, Victoria Docks, London, E.C.

The New Address of

"The Illustrated Poultry Record"

IS

TUDOR HOUSE, TUDOR STREET, E.C.

IMPORTS OF EGGS AND POULTRY.

THE Trade and Navigation returns record a considerable decline in volume of egg imports for April as compared with the corresponding period of 1913, amounting to 378,318 great hundreds, thus counteracting the big increase recorded during March. The result is, as shown in the following tables, that for the four months ending April 30 the imports are merely a fraction over the same period of last year, although the monthly records have varied considerably.

EGGS IMPORTED, 1913 AND 1914.

Quantities in Great Hundreds.

Country.	April.		Three Months.	
	1913.	1914.	1913.	1914.
Russia	755,314	538,016	1,581,006	1,276,025
Denmark	339,244	199,696	1,200,251	960,446
Germany	65,862	49,606	249,216	385,110
Netherlands	160,597	131,577	377,058	500,804
France	120,624	91,258	278,509	275,372
Italy	80,904	110,886	381,819	535,894
Austria-Hungary ..	160,780	188,240	597,218	762,522
Other Countries ..	143,828	139,556	1,201,152	1,208,196
Total	1,827,153	1,448,835	5,866,229	5,904,369

Country.	April.		Four Months.	
	1913.	1914.	1913.	1914.
Russia	266,653	199,215	629,195	531,775
Denmark	159,874	93,016	650,575	540,327
Germany	24,289	19,024	101,984	167,983
Netherlands ..	75,305	60,125	188,875	243,614
France	52,836	40,565	129,452	143,904
Italy	35,671	47,118	188,555	269,606
Austria-Hungary ..	60,009	71,793	250,304	324,519
Other Countries ..	48,725	43,253	418,095	437,553
Total	723,362	574,109	2,557,035	2,659,281

Again Russia and Denmark show a considerable decline, both in the month of April and the four months. Also, Germany, the Netherlands, France, and other countries sent fewer quantities in April, although on the longer period all except France record increases. Italy and Austria-Hungary have largely added to their supplies.

Falling supplies in April have stiffened declared average prices, which are as under (per 120):

Country.	April.		Four Months.	
	1913.	1914.	1913.	1914.
Russia	7 3 $\frac{3}{4}$	7 4 $\frac{3}{4}$	7 11 $\frac{1}{2}$	8 3 $\frac{3}{4}$
Denmark	9 5	9 3 $\frac{3}{4}$	10 10	11 3
Germany	7 6 $\frac{1}{2}$	7 8	8 2	8 8 $\frac{1}{2}$
Netherlands ..	9 4 $\frac{1}{2}$	9 1 $\frac{1}{2}$	10 0 $\frac{1}{4}$	9 8 $\frac{1}{2}$
France	8 9	8 10 $\frac{1}{2}$	9 3 $\frac{1}{2}$	10 5 $\frac{1}{2}$
Italy	8 9 $\frac{1}{2}$	8 6	9 10 $\frac{1}{2}$	10 0 $\frac{1}{2}$
Austria-Hungary ..	7 5 $\frac{1}{2}$	7 7 $\frac{1}{2}$	8 4 $\frac{1}{2}$	8 6
Other Countries ..	6 9 $\frac{1}{4}$	6 2 $\frac{1}{4}$	6 11 $\frac{1}{2}$	7 2 $\frac{3}{4}$
General Averages..	7 11	7 11	8 8 $\frac{1}{2}$	9 0

Again the drop in value of Dutch eggs is the striking fact, indicating a fall in quality. Further, Danish in April, in spite of reduced volume, fell slightly, though on the four months they are higher and stand at the top. The general average for the four months is 3 $\frac{1}{2}$ d. per 120 above 1913.

In poultry, imports during April increased, but are less for the total period. The figures are:

DEAD POULTRY IMPORTED, 1913 AND 1914.

Quantities (in hundredweights).

Country.	April.		Four Months.	
	1913.	1914.	1913.	1914.
Russia	2,495	6,440	79,178	105,656
France	418	340	5,319	3,209
Austria-Hungary ..	2	—	8,775	5,825
U.S. of America	6,719	3,073	52,212	21,208
Other Countries	1,666	5,835	17,935	11,602
Total	11,300	15,688	163,419	147,500

	VALUES (in £'s).			
Russia	6,647	19,158	218,916	329,669
France	2,484	1,828	22,742	16,265
Austria-Hungary	10	—	31,202	21,353
U.S. of America	25,731	12,847	204,558	83,343
Other Countries	6,446	17,850	56,688	41,692
Total	41,318	51,683	534,106	492,322

Although the total decline is not great, it is still appreciable. Considering the huge drop in American supplies, the question would have been more serious but for the big increase from Russia. In the months of April the average declared values per hundredweight were respectively: 1913, 73s. 2½d.; 1914, 65s. 3d., the decrease being due to reduction of American shipments and increase of cheaper fowls from Russia and other countries. For the four months the declared values

per hundredweight show a slight increase, as follows: 1913, 65s. 4¼d.; 1914, 66s. 9d.

The exports during these periods are:

	1913.		1914.	
	April.	4 Months.	April.	4 Months.
	£	£	£	£
British and Irish	82	119	876	662
Foreign	2,755	2,758	5,308	7,888
Totals	2,837	2,877	6,184	8,550
	VALUES.			
British and Irish	465	559	4,218	3,265
Foreign	13,235	13,394	25,259	36,089
Totals	13,700	13,953	29,477	39,354

As seen, the increase recorded is entirely in re-exports.

PRICES OF EGGS AND POULTRY.

From "Return of Market Prices" issued by Boards of Agriculture for England and Scotland.

EGGS—HOME PRODUCE.				
	WEEK ENDING			
	April 22.	April 29.	May 6.	May 13.
	per doz.	per doz.	per doz.	per doz.
London	/11 to 1/0	/11 to 1/0	/11 to 1/0	/11 to 1/0
Bristol	/10½	/11	/11	/11
Carlisle	/10	/10	/10	/10
Denbigh	/10½ to /11	/10	/9 to 9½	/9½ to /10
Derby	/11 ,, 1/0	/10½ to /11	/10½ to /11	/10½ ,, /11
Dorchester	/10¾	/10¾	/10¾	/10¾
Hull	/11	/10½	/10½	/20½
Ipswich	/10¼ to 1/0	1/0	/10¼ to 1/0	/10¼ to 1/0
Lincoln	/11	/10½	/11	/11
Newport (M)	/10½	/10½	/11	/11
Norwich	/10	/9	/9	/9½
Penzance	/8 to /9	/8 to /9	/8 to /9	/9
Ruthin	/9 ,, 9½	/9 ,, 9½	/9 ,, 9½	/9½ to /10
Shrewsbury	/10¼ ,, /11	/10¼ ,, /11	/10¼ ,, /11	/10¼ ,, /11
Wolverh'ton	/10¼ ,, /11	/11 ,, 1/0	/11 ,, 1/0	/11 ,, 1/0
York	/11	1/0	1/0	1/0
Glasgow	/10 to /11	/10 to /11	/10 to /11	/10 to 1/0
	per 120.	per 120.	per 120.	per 120.
Irish (L'don)	8/6 to 9/0	8/6 to 9/0	8/0 to 8/6	8/0 ,, 8/6

EGGS—FOREIGN (London).				
	WEEK ENDING			
	April 22.	April 29.	May 6.	May 13.
	per doz.	per doz.	per doz.	per doz.
French	8/6 to 10/0	9/0 to 10/0	8/6 to 10/0	8/6 to 10/0
Danish	9/0 ,, 10/6	8/6 ,, 10/6	8/6 ,, 10/0	8/6 ,, 10/3
Egyptian	5/6 ,, 6/0	5/6	7/0 ,, 7/9	7/0 ,, 8/0
Austrian	6/9 ,, 7/6	6/9 to 7/6	7/0 ,, 7/9	7/0 ,, 8/0

POULTRY—FOWLS.				
	WEEK ENDING			
	April 22.	April 29.	May 6.	May 13.
London	4/6 to 5/9	4/0 to 5/6	4/0 to 5/6	4/0 ,, 5/6
Birmingham	3/0 ,, 3/9	3/0 ,, 3/9	3/6 ,, 4/0	3/0 ,, 3/6
Bristol	3/0 ,, 3/6	3/0 ,, 3/6	3/0 ,, 3/6	3/0 ,, 3/9
Derby	2/10 ,, 3/6	2/10 ,, 3/6	2/10 ,, 3/6	2/10 ,, 3/6
Hereford	3/0 ,, 3/6	3/0 ,, 3/6	3/0 ,, 3/6	2/9 ,, 3/3
Ipswich	3/3 ,, 3/9	3/3 ,, 3/9	3/3 ,, 3/9	3/6 ,, 4/0
Lincoln	2/6 ,, 3/3	2/6 ,, 3/6	2/6 ,, 3/6	2/6 ,, 3/6
Newport (M.)	3/3 ,, 4/3	3/3 ,, 4/0	3/3 ,, 4/0	3/3 ,, 4/0
Norwich	2/2 ,, 3/6	2/6 ,, 3/6	2/9 ,, 3/9	2/4 ,, 3/11
Penzance	4/0 ,, 4/6	3/9 ,, 4/0	3/9 ,, 4/0	3/3 ,, 3/6
Shrewsbury	2/9 ,, 3/6	2/9 ,, 3/6	3/0 ,, 3/6	2/9 ,, 3/6
York	3/0 ,, 3/9	3/0 ,, 3/9	3/0 ,, 3/9	3/0 ,, 3/6

DUCKS.				
	WEEK ENDING			
	April 22.	April 29.	May 6.	May 13.
London	4/6 to 6/0	5/6 to 8/0	4/0 ,, 7/6	4/0 ,, 7/0
Birmingham	3/6 ,, 4/0	3/6 ,, 4/0	3/6 ,, 4/0	3/3 ,, 4/0
Bristol	3/0 ,, 4/0	3/0 ,, 4/0	3/0 ,, 4/0	3/0 ,, 4/0

REPORTS AS TO LONDON MARKETS WERE AS FOLLOWS				
	WEEK ENDING			
	April 22.	April 29.	May 6.	May 13.
	each	each	each	each
Sur'y Chicks	4/6 to 6/6	3/6 ,, 6/0	3/6 ,, 6/0	3/6 ,, 6/0
Fatted Irish	4/0 ,, 5/0	3/6 ,, 4/6	3/0 ,, 4/0	3/0 ,, 4/0
Irish	2/9 ,, 3/3	1/9 ,, 2/6	1/9 ,, 3/6	1/9 ,, 3/3
Lincolnshire	3/0 ,, 3/9	2/0 ,, 3/9	1/9 ,, 4/0	1/9 ,, 3/9
Ducklings	5/0 ,, 7/6	4/6 ,, 7/6	3/0 ,, 6/6	3/0 ,, 6/6
	per lb.	per lb.	per lb.	per lb.
Russians	/7 ,, /11	/7 ,, /11	-/7 ,, -/11	-/8 ,, 1/0

TURKEYS AND DISEASE.



HERE is a popular idea, so widely prevalent that it is almost worthy to be designated a tradition, that turkeys are endowed with constitution of such delicacy as to make their successful rearing a question of uncertainty and doubtful profit. One has not to seek far to discover the source from which this impression emanated. All the early writers on poultry culture, at least those who wrote in our own tongue, invariably accompanied their remarks on turkey-rearing with depressing warnings of difficulties to be expected on account of this inherent delicacy. But if the reasons that prompted their counsel are closely looked into they will be found to have been conceived because of disasters recorded by breeders who neither understood nor studied the wants and habits of the birds rather than because of any constitutional peculiarity impossible to conquer with increased experience. And so it is to some extent in our own day, although the growth of knowledge and the adoption of a more rational method of treatment on lines more strictly in accordance with the natural habit of the species have done much to dispel the notion that turkeys cannot be made, on the score of their health, to bring as much grist to the mill as other varieties of poultry.

It cannot be denied that turkeys in the interval of their lives between hatching and attaining adult age are often a source of anxiety and disappointment. It is equally certain that they pass through critical stages in their development, at which times improper food and surroundings will of a surety induce more than one form of fatal disease. But it is no less clear that if proper steps are taken to understand the nature of their physical peculiarities and to provide them with an environment as far as possible like that which they enjoy in the wild state, much will have been done to protect them from disease and enable them, when it comes, to repel it successfully. In this connection, therefore, it will not be inappropriate to turn aside for a moment in order to ascertain if history throws any light upon the conditions and circumstances under which the species came to be domesticated.

The wild turkey is undoubtedly of American origin, and still finds a home in some wooded parts of North America, where, however, it is rapidly becoming scarce. How long it was there before the new continent was discovered by the Spaniards would be impossible to say, but its domestication by man had been already effected before their arrival. By them it was probably first introduced to Europe, for the bird mentioned by the early Greek writers as "meleagris" can scarcely have been the turkey. In England we first read of it in the reign of Henry VII., while its arrival in France does not appear to have been chronicled until the time of Charles IX., when it was one of the luxuries at that monarch's wedding banquet. Its actual importation to England was by way of the West Indies, but the turkey is an inhabitant of temperate climes. It will thrive fairly well in India and Africa, but it is not adapted to tropical countries so well as to more northern latitudes; and, notwithstanding the name it bears, the bird has no historical relation to the countries of South-Eastern Europe.

Assuming, then, the woods of North America to be the natural home of the wild turkey, a comparison of its habits of life in such surroundings with the treatment to which it is subjected under domestication will help to suggest some causes of failure in rearing other than that of inherent weakness of constitution. In unrestricted life it is accustomed to a free range, and exercises powers of flight by no means inconsiderable. Plainly, it is ill-adapted to confined runs and limited ground space. As a perching bird, it will from the age of seven or eight weeks seek the high branches of trees as a roosting-place. This sylvan habit, besides providing shelter from cold winds and rain, protects it from the evil consequences of resting on wet ground. It is well known that stock birds in domestication will thrive much better when they have access to trees, while damp ground and exposure to rain are predisposing causes of many of the ailments to which turkeys are particularly liable.

Then, again, in the matter of food, that of the wild turkey includes abundant supplies of insects, fresh green food, leaves, berries, seeds, and acorns, but especially must the supply of nitrogenous food be liberal. How often is this forgotten when the birds are kept in the poultry-yard or on a patch of poor grass land, on which every insect has long before been eaten up! The study of the turkey in natural life, therefore, teaches us that the chief conditions tending to its health and vigour are shelter, dry footing, and protection from rain. Moreover, we learn that its natural diet is rich and varied both in regard to animal and vegetable components; and, lastly, the free, open life in the wild state suggests that when kept in domestication turkeys will soon suffer under the opposite conditions of insufficient ventilation.

The question of the character of the land upon which rearing operations are conducted has always been held to be one of importance, but it is not unlikely that too great stress has been laid upon the necessity for a light, sandy soil, and those poultry-keepers who have not such land are often deterred on that account from entering the ranks of the turkey industry. A sandy soil, of course, ensures dryness, a distinct advantage, but one that is discounted by the poor quality of grass and the consequent scarcity of insect life which such land carries with it. Excellent birds can and have been reared on even heavy clay soils, but a good barn or shed is essential so that a shelter on rainy days, or when the land is saturated, is always available. Our Eastern Counties, justly celebrated for their production of turkeys, provide a typical soil for successful rearing. Without being too heavy, it is rich enough, and yet such land can by no means be called light and sandy. What must be closely attended to concerns not so much the quality of the land as the knowledge that a wet range and exposure to rain are the two factors that cause most havoc among turkey poults and chicks. They are the predisposing causes of pneumonia, and

The New Address of
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there is no other disease of turkeys, in this country, at least, to which losses in young stock can be traced. Another cause of this scourge will be found to lie in the custom of shutting up a flock of turkey chicks in an ill-ventilated, close house during the night, and in the early morning, with heavy dew or rain still on the grass, releasing them to run on it. The losses by this carelessness are very considerable, and the deaths may go on, by twos and threes, each day until the cause is discovered. Pneumonia is not the only form of lung inflammation to be traced to the effects of exposure to wet. Bronchitis and pleurisy are diseases fairly common among turkeys, though not nearly so deadly or difficult to deal with. Every breeder also has at one time or another had birds suffering from rheumatic cramp. Here, again, the same cause is at work, and whatever remedies are applied, the treatment must include warm and dry quarters. There is another disease in which cramp and helplessness of the legs is a prominent symptom, and which must not be confounded with rheumatic cramp. Reference is made to rickets, a malady dependent upon improper feeding, which occurs when the chicks are a couple of months old, and, of course, there are many diseases of digestion, such as gastro-enteritis and dysentery, that are also the direct result of erratic systems of feeding.

Turkeys also are as prone to contract parasitic diseases as other poultry, and gapeworms, as well as certain species of worms that invade the intestinal tract, are at times a great nuisance. Turkeys reared on land by themselves are much less liable to pick up these pests than when farmed with other poultry or in woods where pheasants abound. There are other reasons also for keeping the birds quite separate from ducks and fowls.

The parasitic disease, well known in America, fortunately rarer over here, termed "blackhead," was in a recent number of this paper so ably dealt with by Professor F. V. Theobald that no description is required in this article. The precise character of the parasite that causes it is still in doubt, and more information regarding outbreaks must be collected. Turkey-breeders who may at any future time suspect their stock to be suffering from symptoms resembling those of "blackhead" will both assist investigation and at the same time benefit themselves if they will bring the epidemic to the notice of one of the many authorities who are now only too willing to help them.

Turkey-breeders are familiar with the phenomenon known as "shooting the red" or "throwing the red." It consists of the changes by which the membranes about the head and neck of the bird rapidly develop and become turgid with blood. These membranes in turkeys are analagous to the combs and wattles of fowls, and their development at the age of two months or thereabouts merely means that the birds are attaining sexual maturity. The exposure of so large an area of uncovered skin suddenly charged with blood, together with other disturbances in the circulation going on elsewhere at the same time, render the young turkeys especially prone to chill. In fact, it marks a crisis, and the event is justifiably dreaded by breeders. This is the time, above all, when the birds must be kept warm and sheltered, and if the weather demands it they will be better confined to a shed until the process is complete.

PITY THE SORROWS OF A "GOVERNMENT" POULTRYMAN.

IN the *Inland Poultry Journal* for March, Theo. Hewes jabbed the poultry instructors and investigators with: "How many practical men are there at the heads of the poultry departments of our agricultural colleges? How many of them have made good in the profession they have chosen before securing positions at these colleges, and how many of them could make a living out of the business if they were turned loose and told to hustle for themselves? . . . Try to figure out how many failures you can think of—men who have absolutely failed in every other business—who are to-day drawing good salaries from the National or State Government, trying to teach others to do correctly the very thing that they fell down on. It actually makes one smile when he goes over the list, and we know the rank and file of the poultrymen."

Dr. P. T. Woods, in the *American Poultry Journal* for April, takes this as a text and with here and there a brief interpolation of damning "faint praise" gives a qualified endorsement to the substance of the Hewes indictment.

Dear Brethren of the Press, it does not lie with Poultry Journalism thus to reproach Poultry Pedagogy. What you say of the teacher is but a repetition of what many poultrymen say of the writer. It is only a year since one poultry editor stated that there were only four of his class in America who were "practically engaged in keeping poultry." There is a great deal that is done by or under the auspices of the colleges that is open to criticism, but let us make these criticisms specific. Let us criticise what is wrong without condemning on general principles. If the devil should have his due, how much more the poultry instructor who, on the whole, is doing as well in his field as we in ours.

Remember, too, that the ethics of his profession, and a wholesome respect for your power to damage his reputation and to bring his institution into a prominence not agreeable to his colleagues, combine to prevent him from taking up the cudgels in defence of himself and his class. Consider further that he is not in a position to become well informed upon those things in your lives upon which you will not expand when you write your autobiographies. Make reasonable allowance for his handicaps and be glad that he does not know enough about you to forget to be prudent when you swat him on general principles.

As to the merits of the case. The point upon which most teachers of poultry culture are open to criticism at this time is not that they have failed in poultry-keeping, or anything else, but that they have not yet had the practical experience in poultry-keeping or in any other line that people ought to have to be fully qualified to teach a subject of this class. As Dr. Woods says, some people may have learned through their own failures practical lessons of use to them as teachers, and many successful, practical men have not the faculty of imparting this knowledge to others. As a matter of fact, a good many successful poultry-growers know very little about the subject beyond what is necessary for their own use. They have not had occasion to study it up and their interest was not of the

kind that impels men to investigate to satisfy their own curiosity.

The colleges have to take many inexperienced men because they can get no others that will meet their requirements as well. There are some men with a good deal of experience and with some faculty for teaching that are "impossible" as teachers because of temperament, habits, attitude toward co-workers, etc., all which points have to be considered in the selection of men for college positions. Eventually, there will be a very much larger supply of competent men for this line of work, but they will never be all stars. Some of them will be mediocre and some of them just passable.

Meantime, unless some of our poultry journalists put out a lot better stuff than they are printing now, some of the despised college men will switch over into journalism and get their jobs. And this is no dream.—*Farm Poultry*.

CARBON DIOXIDE IN INCUBATION

THE amount of carbon dioxide in fresh air is about 3 parts in 10,000 parts by volume.

The amount of carbon dioxide found in the egg chamber of an incubator containing fertile eggs is dependent upon the following factors: rate of ventilation, number of embryos, period of incubation, size of egg chamber, temperature and carbon dioxide in the air of the incubator room (excluding the possibility of lamp fumes from a defective heater).

The chief source of carbon dioxide in incubation is the embryo. Other minor sources are the eggshell, hen, nest material, and room air.

Carbon dioxide increases from the beginning to the end of the period of incubation with this exception, that the amount falls slightly after the first and sixteenth days. After the third day the increase of carbon dioxide is proportionate to the increase in weight of developing embryo. The amount of carbon dioxide under sitting hens at the beginning of the period of incubation is much higher than for the room and increases to 50 or 60 parts in 10,000.

In the commercial incubators tested, the amount of carbon dioxide increases from an amount a little higher than room air to a total of 30 to 50 parts in 10,000. From this it appears that carbon dioxide is not a limiting factor in commercial incubation.

Ventilation is necessary in incubation in order to remove a portion of the respired carbon dioxide and prevent asphyxiation of the embryo.

The normal embryo is able to withstand a wide variation of carbon dioxide during incubation. It is practically impossible to remove all of this gas from the egg chamber without serious results from excessive evaporation. Where the ventilation was increased and a carbon dioxide did not exceed 30 parts in 10,000 (a low maximum) no marked reduction in the percentage hatch was found. Good results were obtained in all cases when the carbon dioxide did not exceed 60 parts in 10,000, which approximates the amount found in natural incubation. The effect of carbon dioxide is slight until a maximum of 150 parts is reached; as the amount rises above this point there is a marked decrease in the number of chickens hatched. We conclude that in all incubators carbon dioxide will be found, but its presence is not essential to successful incubation.—Bulletin No. 76, Storrs Experiment Station.

SHOULD EXHIBITORS' NAMES BE ON COOPS AT SHOWS?

A NUMBER of our prominent poultry journals have recently been publishing lengthy articles concerning the advisability of placing the name of the exhibitor on the coops at the shows prior to the judging, and it has no doubt set a great many of our show managers to thinking and considering the subject. These articles, as far as I have been able to learn, have been contributed by some judge or editor, and deal with the subject as being a very desirable feature to be adopted by all show managements. Theoretically, I agree that the custom would be very desirable in a great many respects, but I am going to recite for your approval, or disapproval, one or two phases of the plan, which I think have been overlooked in the articles brought to my attention.

The authors of these articles compare our poultry shows with the horse shows, the cattle shows, and the dog shows. Now that is where the whole plan is at fault, in my mind. The judging at all the above-mentioned shows is done in the open, so to speak. The animal to be judged is led out before the audience and the points of excellence or disqualification pointed out, and with men looking on as well posted and as capable of judging as he himself, a judge would indeed have to be "some crooked," and have some nerve to slip one over under such conditions. If poultry could be judged in the open as these other animals are, an entirely different light would be thrown on the proposition. I should like to see poultry judged before an audience, but would it be practical? Such a system would necessitate the employment of at least twice the number of judges, and thus add greatly to the expense, to say nothing about the dissatisfaction of the exhibitors, because of the delay in getting the awards placed.

There is one way to treat this whole subject, provided that the public is clamouring for any decided change, that is to use the explanatory score card system on every bird in the show, and we all know that such a system, while being without doubt the most equitable, is altogether too slow to be adopted by any management except at the very small shows. Personally, I do not think there is any urgent need of starting a great reform movement in regard to the judging at our poultry shows. The judges who have been or who have appeared to be crooked in the past are pretty well known, and no show management would for one minute consider any judge who had failed to give perfect satisfaction at the various shows where he has judged.

I do think it would be very pleasing to the patrons and to a large majority of the exhibitors to have the name of the exhibitor placed on the coops. Of course the show management would not welcome such a system, as it would incur a great amount of extra work and would deprive the management of one of its principal sources of revenue—namely, the sale of the catalogue. We all agree that our greatest asset as a poultry club, staging a poultry show, is to obtain and hold the approval and moral and financial support of the people in our vicinity, and this can only be accomplished by running our shows absolutely on the square, and employing only such men as judges who are well

known to be fearless and honest, and eliminate every semblance of unfairness.

In conclusion I ask, will the people in general who attend these poultry shows feel that they are run and judged on the square, if they know that the judge has, behind closed doors, placed the awards, knowing the owner of each bird, or would they feel that a pretty raw deal had been handed to them?

H. C. LAPHAM, Pres.,
Springfield Poultry Club, Inc.

Springfield, Mass.

[This appeals to us equally as much as to fanciers in the States.—ED. I.P.R.]

THE CHINESE EGG SHOULD NOT FRIGHTEN US.

WE read a great deal in the daily papers, these days, about the large importations of eggs from China. We received a letter the other day from a correspondent in Washington which reads, in part: "Eggs sixty to seventy-five cents all winter and the demand never supplied, while Chinese eggs were twenty-three cents. Now, April 9th, Chinese eggs are nineteen cents and ranch eggs twenty-five, but going up."

Poultrymen throughout the country, and especially on the Pacific Coast, where they meet the most of this competition, are endeavouring to get some sort of legislation that will compel dealers to label all foreign or Chinese eggs. The hens of China are said to be kept under most filthy conditions, and as it takes twenty-eight days' running time for a steamer between Shanghai and San Francisco, and as these eggs have to be packed by native carriers from the various points in China to the dealers, every egg that reaches our shores will be at least five weeks old.

As many of our States now have a law that all cold storage eggs must be plainly labelled "cold storage eggs," we believe it is no more than right that these foreign importations be labelled as to what they are. We also believe that the day is fast approaching when we will have egg or farm inspectors in this country to see that eggs sold for market purposes come from healthy flocks kept under modern sanitary conditions, giving us conditions similar to those applied to the dairy business in this country.

We have noted in the Press that the eggs imported from China were used mostly by the bakers of California, but that they soon discarded them and were willing to pay a premium for the fresh product of the Petaluma district.

One of the tariff arguments put up to the hen farmer was that while eggs would be admitted free of duty, so would grain. We have not noticed any reduction in the price of grains, nor have we noticed that flour is any cheaper, in spite of free duty on wheat and other grains.

We have claimed right along, and still claim, that the great American hen is going to be a factor in solving the question of the high cost of living, and some day the American hen farmer will wake up and take his politics out of his business or vice versa and vote for his own interests.—*Successful Poultry Journal*.

A New Departure in American Journalism.

In June, *Poultry Husbandry*, Waterville, N.Y., will be merged with *Farm Poultry*. Mr. D. M. Green, now editor and manager of *Poultry Husbandry*, will be associated with Mr. John H. Robinson in the conduct of the consolidated papers.

Farm Poultry will go to all present subscribers to *Poultry Husbandry* in June, July, August, September, and October. With the number for the last-named month *Farm Poultry* will appear for the last time with the name it has borne since it was established, September, 1889. Beginning with Saturday, November 7, it will be issued weekly.

Mr. John H. Robinson, the editor of *Farm Poultry*, has believed for some years that the demand for a poultry paper in the States, and especially in the East, could be fully met only in a weekly devoted to all phases of poultry culture and giving some attention to various interests closely allied with it. Until the proposition to combine the two papers came up, however, he considered the question of issuing a weekly paper as one to be perhaps considered when the monthly reached the natural limits of its development. When the effects and possibilities of combining the circulations and organizations of the two papers were considered in detail it was apparent that this was an opportune time to change to a weekly issue and the decision was made accordingly.

Poultry Weekly, continuing *Farm Poultry* and *Poultry Husbandry*, will preserve much of the outward form and most of the features of *Farm Poultry*, and develop some of the special features of *Poultry Husbandry*, and supplement the combination by publishing all the news for all classes of poultry-keepers.

"Clarendo" Malted Chicken Meal.

This is the latest of the "Clarendo" celebrated poultry meals, of which the proprietors are Messrs. White, Tomkins, and Courage, Ltd., 48, Mark Lane, E.C. Its constituents are similar to the "Clarendo" Poultry Meal, which has been on the market for the past four years and has proved to be all that is claimed for it—the perfection food for egg-production and chicken-rearing.

Both meals are made from scientifically milled cereals—wheat, maize, rice, &c. Wheat, from which has been taken the centre of the grain for making human food, principally starch. The portion used is next to the bran (it is rich in phosphates and bone-forming elements). This acts as a laxative, keeping the system in order. Maize is rich in oil, necessary for the yolk of the egg and for forming mellow flesh in the growing chick and for finishing off for the table. In the process of milling, the starch has been abstracted and the other portions of the grain are partially cooked, so that they are predigested and readily assimilated. Rice, which in its original state consists principally of starch, has been so treated that only the most nutritive portions have been retained. This cereal contains a large amount of the life-giving element known as "oryzanin," without which life would be impossible.

In the "Clarendo" Laying Meal granulated meat is used, which accounts for the high percentage of flesh-forming elements (nearly 20 per cent.).

In the "Clarendo" Malted Chicken Meal oats are substituted for the granulated meat, ground to a fine meal. During the process of grinding, the grain is partially cooked. The above are all blended in well-balanced proportions, to which are added the germs of malt.

Another important element in the "Clarendo" Malted Meal is "Vi-do," the "Clarendo" malt food tonic, which contains nearly 50 per cent. of albuminoids, the flesh-formers. This is a very important factor in building up strong frames, the whole forming one of the best foods that has ever been put on the market, being rich in all the elements required for feeding fowls in all ages from babyhood to maturity. By using this meal the proprietors

claim that table poultry can be produced at a cost of fourpence per pound.

The Firm of Robert Miller, Denny, Scotland.

The remarkably rapid way in which this business has come to the fore, seeing that it is less than a decade since Mr. Miller began to sell chickens and only about seven years since he established his poultry appliance section, speaks well for the quality of the goods and stock that he places on the market. It is now the largest combined poultry-producing and poultry appliance plant in the United Kingdom. Fortunately for Mr. Miller's customers, he has a first hand knowledge of poultry-keeping in all its branches; hence he is able to advise clients on all questions. Space will not permit of our making mention in detail of the various appliances that are built, but the majority of these are so well known that they require no word of ours to recommend them. His patent incubator has achieved a remarkable success; the patent brooder and the Smallholder brooder are appreciated everywhere; the fireless brooder has won a position for itself; the indoor brooder has received a large amount of attention from poultry-keepers; of the many types of houses made the Paradise, the Pavilion, the Prodigy, and the Provost are all very popular. Buyers may be assured of one fact—namely, that when they deal with this firm they are purchasing goods that will stand the test of years. Mr. Miller is only too pleased to send a copy of his catalogue to all who ask.

Orpington Poultry-Farm.

The farm consists of eighteen acres of excellent land for poultry-farming, a rich loam on a subsoil of chalk, well planted with fruit trees that offered shade for the adult and growing stock. Passing a comfortable cottage in an old-time garden, we came to the office, adjoining which was the food-house with capacious bins for holding the various kinds of food necessary for the 3,000 head of different class of birds on the farm. Attached to which is the washing-room for preparing the birds for the show-pen.

The poultry-house is 1,000 feet long, a wide alleyway runs down the centre, on either side of which are 80 breeding-pens, 12 feet by 12 feet, each having an outer grass run of considerable extent. The pens contain over twenty different varieties, including Orpingtons—White, Black, Buff, and Rosecomb Blue, the latter having been originated on the farm, the result of years of careful mating; Wyandottes—White, Golden Partridge, Columbian; Rocks—White, Barred, and Buff; Rhode Island Reds—Single and Rosecomb. Faverolles—White and Salmon. Sussex—Light and Speckled. Also Indian Game for crossing with other heavy breeds for table purposes, this being a speciality on the farm, thousands of chickens being reared annually for the London markets. Of the light breeds for egg-production there were Leghorns—White, Brown, Black, and Blue, of fine laying strain, Minorcas, and Silver Campines, and also a pen of Houdans. Of Ducks there are Aylesbury, Buff Orpington, and Indian Runner. Besides these 160 pens there are 60 more in the open, making 220 in all.

The incubator house has accommodation for 5,000 eggs, the demand for day-old chicks is increasing so rapidly that an increased output is necessary. Adjoining the incubator house is the brooder-house, which is divided into 10 runs, with accommodation for 1,000 chickens. This brooder-house is heated throughout with hot-water pipes, each division having a separate hover for mothering the chicks. The runs are planted with fruit trees which give the necessary shade for the young birds.

When the chicks are a month to six weeks old they are placed in cold brooders of Mr. George's own design, in lots of 70 to 100. When the season is in full swing thousands of chickens are to be seen in the rearing grounds..

OUR BOOK MARKET.

Any of the following books will be supplied at the prices named. Cash must always accompany orders.

Amateur Poultry-Keeper. By W. M. ELKINGTON. 120³ pages. Fifteen illustrations. Price, 1/2 post free.

Incubators and their Management. By J. H. SUTCLIFFE. Fifth Edition. Illustrated. Price, post free, 1/2.

Lett's Poultry-Keeper's Account Book. Edited by LEWIS WRIGHT. Cr. 8vo. Post free in the United Kingdom, the Colonies, and foreign countries, 2/8.

Poultry and Egg Raising at Home. By W. M. ELKINGTON. Illustrated. Price, post free 1/2.

Poultry Culture for Profit. By Rev. T. W. STURGES, M.A. Third Edition. Cr. 8vo, 134 pages. Fully illustrated. Post free in the United Kingdom, the Colonies, and foreign countries, paper covers, 1/3; cloth, 1/9.

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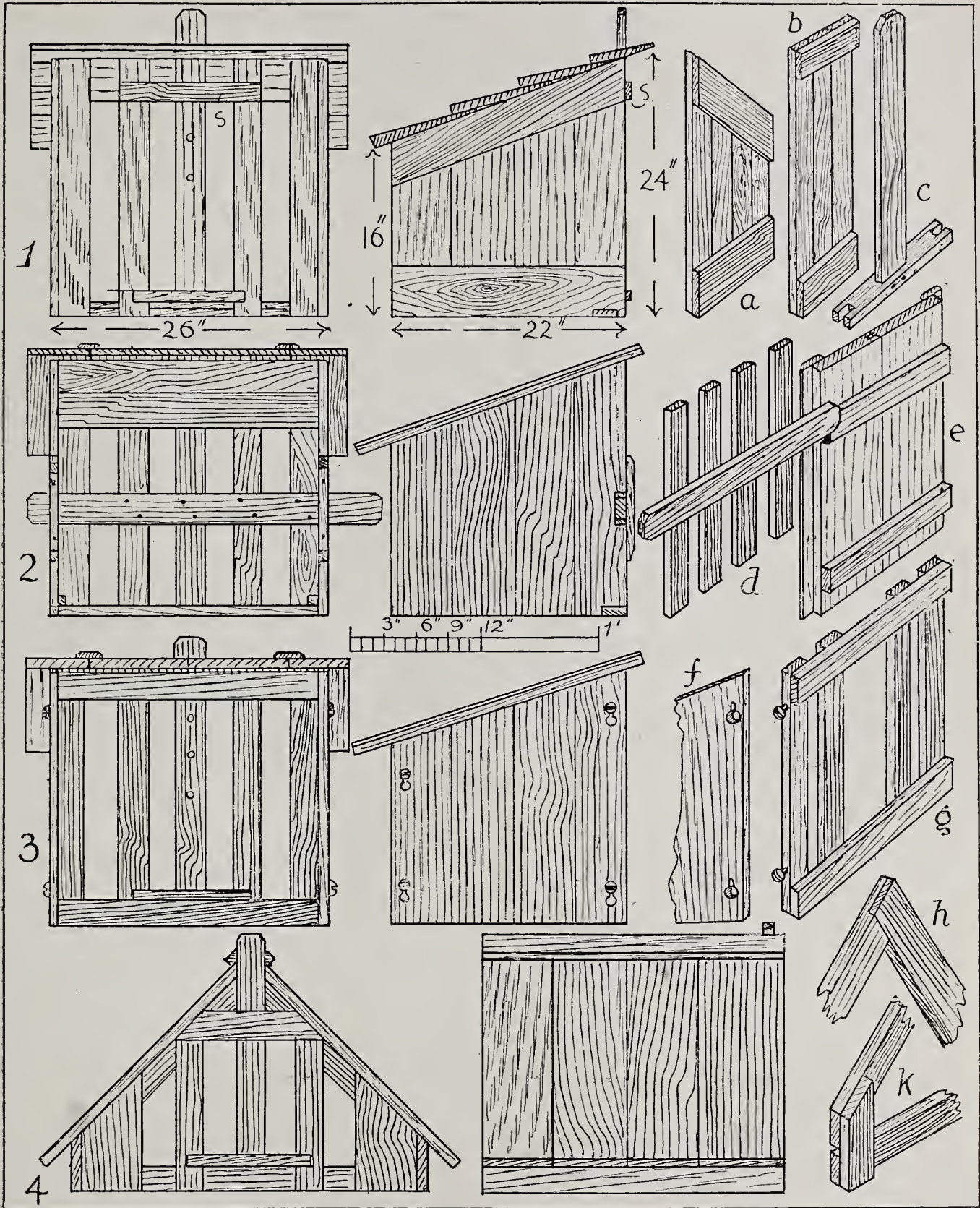
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Report on the Second National Poultry Conference, 1907. Edited by EDWARD BROWN, F.L.S. 382 pages, with nine illustrations. Post free in the United Kingdom, 5/6; in the Colonies and foreign countries, 6/-.

THE ILLUSTRATED POULTRY RECORD,

Tudor House, Tudor Street, E.C.



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Four Useful Chicken Coops (see next page).

FOUR USEFUL COOPS.

THERE is nothing very difficult about the construction of a coop, but it is necessary to have a good idea of the most suitable proportions before commencing work. In the illustrations on page 339 four different types are given; all of them are equally good. No. 1 represents what is probably the most common type. No. 2 is built to the same dimensions, but it has a removable top and a sliding front. No. 3 is a new design for a collapsible coop; it is very similar to the first, but the sides are so arranged that the whole may be taken apart and packed away quite flat. No. 4 is also a well-known type, and is very easily made.

COOP No. 1.—This is made of odd boards $\frac{3}{4}$ in. thick, the two sides as illustrated at *a* are composed of upright lengths nailed to cross pieces of the same material. The length is 22ins., height in front 24ins., and at the back 16ins. The back as indicated at *b* is similarly made, using boards $24\frac{1}{2}$ ins. in length, nailed on to battens, each 16in. long. The sides are nailed to the back, and in front a batten is let in the base, as shown in the side view, and nailed in place. The front is composed of five upright strips, these are nailed to the front of the bottom batten and to a length of board at the top; this piece of board being about 4in. wide and nailed in place from the sides. The two outside uprights are about 3ins. and the inner ones about $2\frac{1}{2}$ in. The middle upright is attached to a strip of $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. wood as indicated at *c*, and slides up and down through a slot cut in the front roof board, and kept in position by means of the strip of wood indicated at *s*. The roof is composed of ordinary feather edge boards nailed on the sides and overlapping on all edges.

COOP No. 2.—The sides of this coop are made in the same way as No. 1 coop, but the battens are inside instead of outside. The back is exactly the same, but in order to allow it to fit quite flat against the sides, the ends of the battens on the latter pieces will have to be cut off $1\frac{1}{2}$ ins. The front is composed of 3in. upright pieces let into the inside edge of a bottom batten, which is itself let into the sides. The spaces between the uprights are equal and will work out about 3in. wide. The top of these pieces is nailed to a length of 2in. by $\frac{3}{4}$ in. wood which is nailed to the sides. The sliding portion of the front is shown at *d*, and is composed of four 19in. lengths of 3in. by $\frac{3}{4}$ in. wood nailed to a 32in. length of the same-sized wood, the spaces being equal to those already fastened in the front. To keep the horizontal bar in place it will be necessary to cut a slot in the side pieces and then nail on a strip of thin wood as indicated in the side view. The space between the top of the sliding bars and the cross piece should be filled in with a $2\frac{1}{4}$ in. wide piece secured by one nail at each end, so that it may be opened outwards as indicated by the dotted lines in the side view. The roof is made to lift off in the centre, and this portion is shown at *e*.

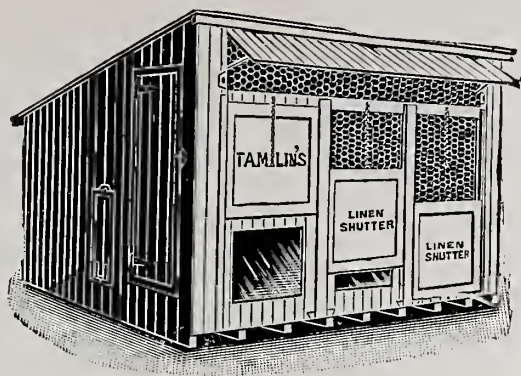
COOP No. 3.—The side pieces are made in the same way as in No. 2 coop, the back in a similar manner, but it will be fitted in place with the battens outside instead of inside. The front, as shown at *g*, is $24\frac{1}{2}$ ins. wide and 24ins. high, and composed of 3in. wide strips nailed to 2in. wide pieces. The centre bar is fitted as shown at *c*, and kept in position by a strip

nailed to the bars at the back. It will be noticed that there are two projecting screws on the upright edge; these are stout rounded headed screws with the inside of the head $\frac{3}{4}$ in. away from the wood. In the portion of the side piece shown at *f*, it will be seen that there are two holes, the upper part being narrower than the lower portion. The upper part should be equal in diameter to the screw, and the larger part big enough to allow the head of the screw to pass through. It will be seen that if the side pieces are placed in position by slipping them over the screw heads, they may be pressed down and will be held quite tight. The top, made like No. 2, may be attached by joining the two outer portions by battens which should fit just inside the front and back. The ends of the battens should have a projecting nail and the nails should fit into the side. When the sides are pushed into place it will be impossible to move the roof.

COOP No. 4.—The back should be made by nailing some boards to a triangular frame made as shown at *h* and *k*, and the front is indicated in the front view. Join the front and back with a length of board at each side as shown, and then nail on the roof, placing a capping of narrow wood to make the top waterproof. The construction of this coop is so simple that no more instruction need be given.

A HUNDRED YEARS AGO.

IN the year 1802 there was published the fourth edition of a book written some years previously by Arthur Young, the celebrated agriculturist, in which there are some extremely interesting notes on the management of poultry. The book contains over 600 pages, only two of which are devoted to poultry—a striking instance of the position then occupied by this branch of agriculture. "Poultry are an article of luxury," says the author, "for which the little farmer never obtains an adequate price. He had better allow his wife a certain annual sum for pin-money than suffer her to keep these devourers. The best, whitest, and sweetest chickens are the common barn-door fowls; they may be improved in size. Best breeders and layers, Dorking and Polanders; they make large fowls, but of a yellowish ivory-white. The Shackbags or Duke of Leeds' breed, the largest we had, are worn out. The Chittigongs, or Malay fowls, are very large and coarse, fit only for soup, but they lay very fine, large eggs. Four hens to a cock, or five at the most. Hens sit twenty-one days. Leave plenty of eggs in the nest when you desire them to sit. Take away the strongest chickens as hatched, securing them in wool, until the whole are hatched and strong enough to be cooped. Hens are not to be cooped near, as they may kill each other's chickens. Young poultry feed themselves, or under coops, as the large are apt to tread the smaller to death. Feed the chickens with split grouts at first, afterwards with tail wheat. The best food for this kind, barley. To fatten them, barley or wheat-meal and milk. Boiled barley or malt, toast and ale, to make the hens lay in winter. The true shape of the hen and cock, short-legged and long-bodied, but plump." This is all that was written on the management of fowls, and anyone who could have hatched and reared successfully must indeed have been able to read between the lines.



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LATE-HATCHED CHICKENS.

THOSE who have failed to raise as large a number of chickens as they expected in the early part of the season need not feel discouraged, for there is still time to make up the deficiency by rearing a few broods hatched in July, and they can be reared without difficulty, if carefully tended. The secrets of success with late broods, as discovered by the writer in the course of a long and varied experience in raising chickens of many breeds at all seasons, are disclosed in the following paragraphs :—

1. The attendant must take the same interest in the late broods as was taken in the first chicks of the year, and must give them as full a share of attention as was found necessary for raising the early chicks. This is not often done, for the interest in one's work begins to flag when it becomes necessary to repeat the same operations month after month and to continue them into a time which to many seems unseasonable. Failure with late broods may in many cases be attributed to this lack of interest and attention, and unless the poultry-keeper has made up his mind to take a keen interest in his late chicks and to give them all the care they need he had better leave the eggs unset and send them to the nearest grocer's shop, for he will make more money this way.

2. Eggs for quick-maturing breeds ought to be chosen for late setting, because chickens of the larger breeds, which are slow in developing, will prove unprofitable when late hatched. Leghorns, Minorcas, Wyandottes, or any of the small or medium fowls, will often lay in November or December if hatched now, and may thus prove more profitable than earlier-hatched chickens of the same breeds; but if Dorkings, Brahmas, Langshans, and fowls of this kind have not been hatched by the end of April, it is advisable to refrain from hatching them until autumn or early winter. Hatched at this time, they will come in as large roasters in spring, when prices are always remunerative.

3. It is of primary importance that eggs selected for hatching late in the season should come from fresh stock. By this I mean that failure will generally result from hatching eggs from the stock which have been confined to their breeding-pens since, perhaps, last December, whilst success is attained by making up a pen of stock birds which are "fresh"—birds which have not been yielding eggs steadily for months past. In order to have stock fresh for late breeding it is always advisable to keep two or three male birds reserved, keeping them away from the hens until they are required for the making up of a late pen; and hens or pullets can be taken from amongst those which have hatched and reared early broods, and which have thus been relieved from the strenuous task of egg-laying for a considerable part of spring. A pen made up from such fowls will supply eggs which are far more suitable for late hatching than the eggs from a pen which has been laying continuously for several months.

4. Now that the weather has become warm, very great care is necessary in the collecting of eggs from the nests at frequent intervals throughout the day, and also in the keeping of them if they have to be kept for many days before being incubated. Often at this time we find great broodiness amongst hens, and

in a very few hours a broody hen in the laying-boxes will spoil any new-laid eggs she sits upon. Again, we have a higher temperature now than we have had for some time past, and it is inadvisable to store the eggs in a warm pantry or kitchen.

5. Late broods will not live or thrive upon the same ground as has been occupied by the earlier chicks, and herein lies the mistake which is most often made by those attempting to raise late chickens. Let them be provided with a piece of ground which has not been occupied by poultry this year or at least for the past month or two, and let them have clean, freshly painted coops and other appliances, and there is no more trouble about raising chicks in July than there is in March or April.

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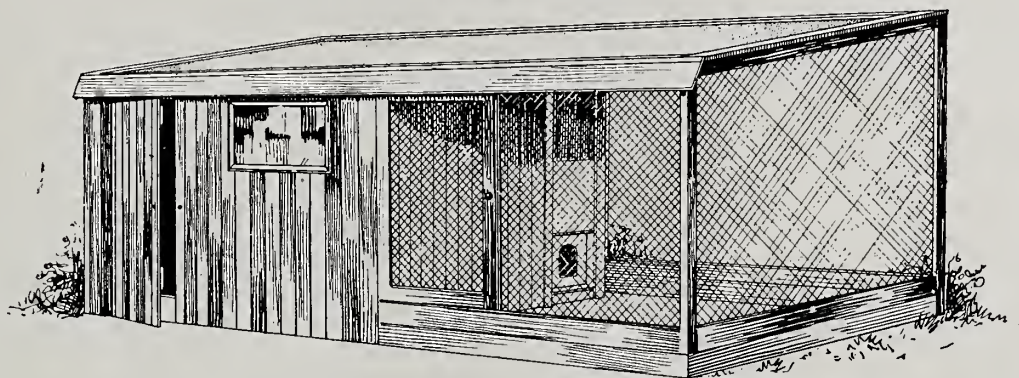
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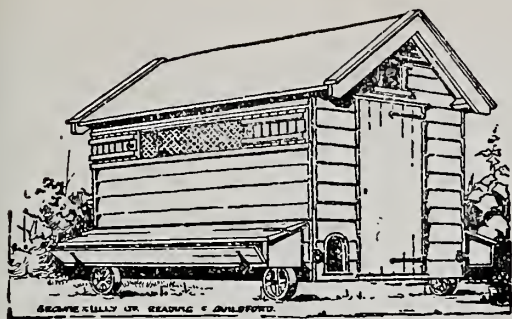
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ARTIFICIAL INCUBATION.—A10. English Incubator-House Interior.—A9. English Incubator-House, Exterior.—A12. Ventilation Pipe for Incubator-House.—A144. Cypher Incubator.—60. American Incubator-House, Interior.—61. American Incubator-House, Exterior.—113 and 115. Mammoth Incubator.

NATURAL INCUBATION.—A13. Basket Nest.—A14. Double Nest, with Run.—A15. Double Nest, with Run Unattached.—A16. Sitting Hen Feeding-Cages.—A17. Hatching Shed.—A18. Hatching Box.

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